The OIL WEEKLY

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OIL and GAS ENGINEERING

FOR OIL AND GAS PRODUCTION AND PIPE LINE DIVISIONS

THE WEEK'S NEWS INTERPRETED

AUGUST 1, 1932
me 66 Number 7

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To OIL MEN ... *Everywhere*

Distribution lists on the 1932 Edition of the Composite Catalog of Oil Field and Pipe Line Equipment (which will be mailed out in September) are now being made up. The Composite Catalog this year will be a several hundred page volume with a fine book binding, containing descriptive matter on hundreds of pieces of oil production and pipe line equipment, a classified index of manufacturers making every conceivable kind of oil field equipment and the complete A. P. I. specifications, officially edited. Several manufacturing companies are placing their entire catalogs in The Composite Catalog this year.

It is "the Bible" of equipment as one operator aptly expressed it. Literally thousands of oil men from all over the world have written us that the Composite Catalog is their best single source of information on oil country equipment.

10,000 copies of the 1932 Edition will be printed this year. Most of them will be distributed either to oil men who specifically ask for a copy or oil men whose companies have requested that their names be included on the distribution list.

If you would make sure of getting a copy read page four of this issue of The OIL WEEKLY and fill out coupon.

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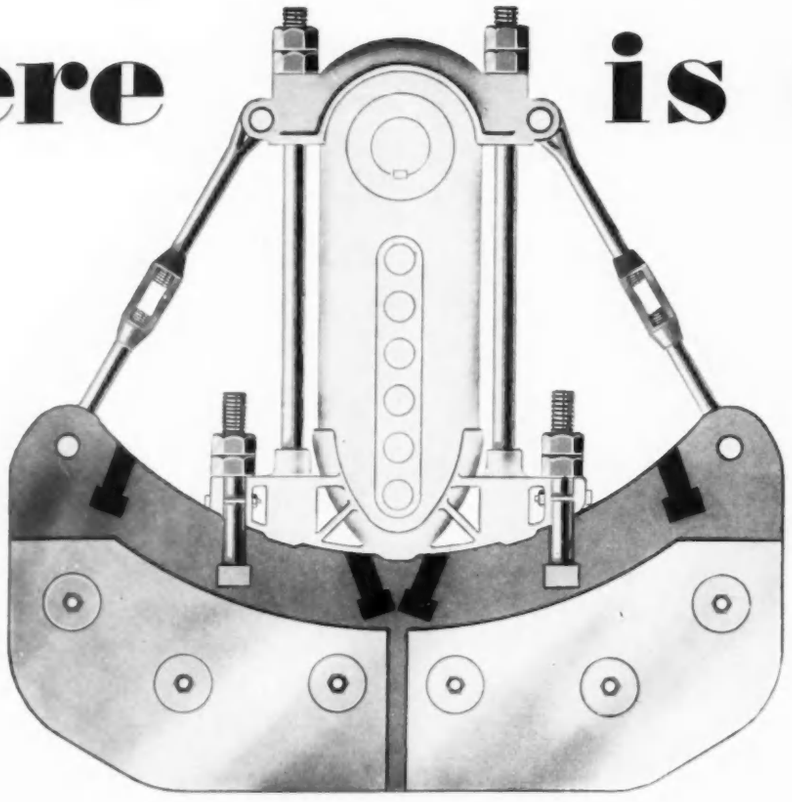

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The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 187[illegible]

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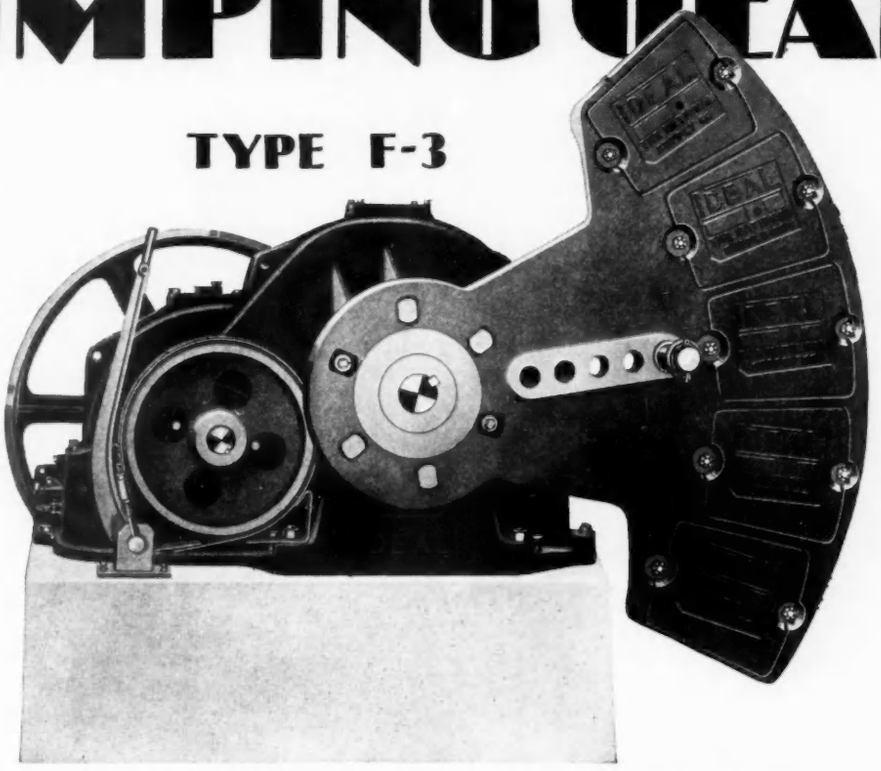

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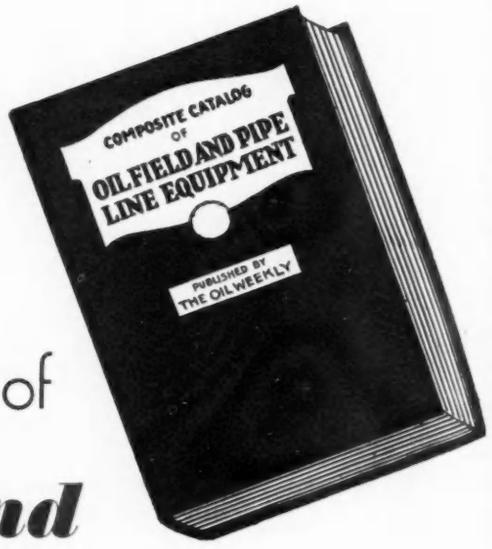

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The Composite Catalog is distributed free only to employees of oil and gas producing and pipe line companies who fall under the following classifications:

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PURCHASING AGENTS
ENGINEERS
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THE OIL WEEKLY

August 1, 1932
Vol. 66, No. 7

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Published Weekly by
THE GULF PUBLISHING COMPANY
HOUSTON, TEXAS

S. W. ROBINSON
Editor

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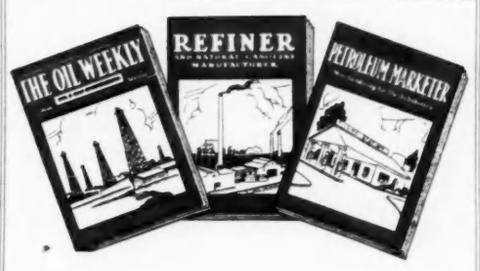

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Published by

THE GULF PUBLISHING COMPANY

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A. L. BURNS, *Gen'l Manager*

S. W. ROBINSON, *Editorial Director*

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FORT WORTH: 203 W. T. Waggoner Building, H. H. King, Manager.

Issued Monday of each week. Single copies 15 cents. Subscription price: Domestic $1.00 a year, Foreign $1.00 a year. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879. Subscription restricted to those engaged in the producing and pipe line branches of the oil business or the manufacture and distribution of oil field supplies. Advertising rates on application.

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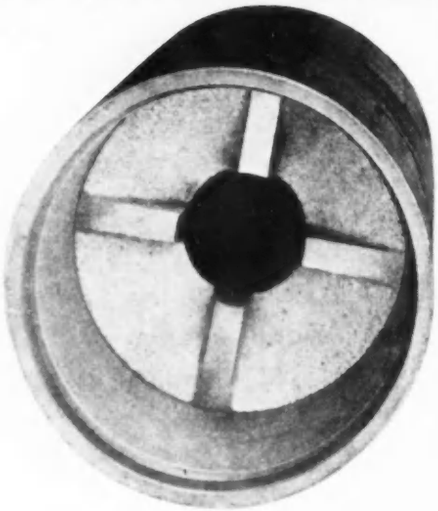

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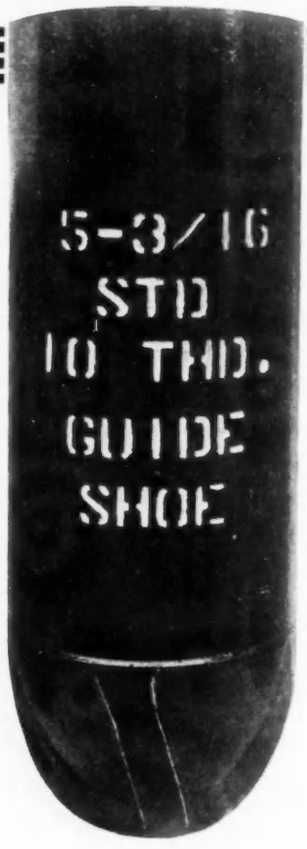

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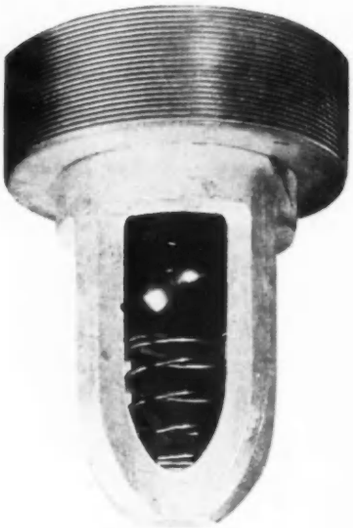

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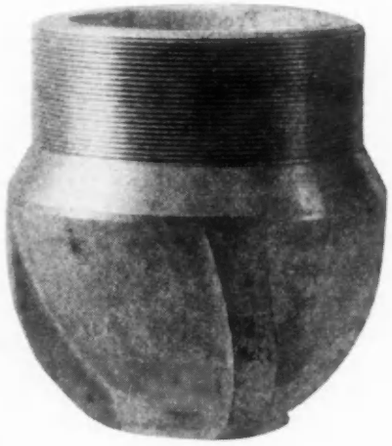

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AUG -2 1932

VOLUME 66, No. 7 AUGUST 1, 1932

THE OIL WEEKLY

FOR OIL AND GAS PRODUCTION AND
PIPE LINE DIVISIONS

ENGINEERING • NEWS • STATISTICS

The Changing Panorama

Refiners reporting to A. P. I. (95.1 per cent of capacity) for the week of July 23, were operating 61.5 per cent of capacity and 24,600 barrels less crude was run daily than the week previous. Average crude runs to stills for the week was 2,263,400 barrels; production that week was 2,205,850 barrels, indicating a slight draft on domestic stocks of crude. Gasoline stocks at refineries were reduced 119,000 barrels to 39,394,000 barrels; gas and fuel oil stocks went down 425,000 barrels to 132,210,000 barrels. Imports into the United States dropped 4000 barrels daily to make a total for the week of 716,000 barrels as against 744,000 barrels for the week previous. California movement of gasoline to the East Coast was in a big decline for the week.

Page 21.

With All Sorts of Apologies

Oil situation looking better all over. East Texas fairly fixed and this time *by* Federal court order; Allred in Texas; Alfalfa Bill in Oklahoma winning, hm, not so good politically. Old Ranger oil being moved, even if it is going south instead of north; oil still coming from stocks; big shots in Europe trying to cut international production, nice statement, Phillips; old stock exchange showing signs of life in a dead time of year, wonder if this is really the break; southwestern farmer finds ten dollar bill stuck in mattress for 60 years—still good money—looks like the gold hoarders were not so smart; Consolidated pays $22,000,000.00 for Richfield properties—Standard offers $17,000,000—lot of money, lot of confidence in the future; A. P. I. directors meet in Colorado Springs, but didn't wire Congress, and nobody brought a fiddle, hm; old oil business going to have a good year next year; yes sir!

The well is allowed to produce only so much each day; a known office will permit that much production in a time that can be calculated. If the well is hard to get to and it takes one trip to open and one to close the valve, why bother about it when a clock will do the chore? That is what Atlantic Oil Producing Company engineers decided about wells in the river bottom in East Texas. Without any special equipment other than readily at hand, apparatus has been assembled which makes the daily flowing of the well automatic.

Page 23.

Heaving shale is a type of formation met with in some wells in the Gulf Coast area and some other parts of the world. Its pecularity is that when (if) the drill

PONTOON BRIDGE ACROSS TIGRIS RIVER AT BAGDAD, IRAQ.

Absence of bridges at proper convenient points is one of the difficulties of constructing the pending Iraq pipe line.

stem is pulled out of it the hole comes out too, or in extreme cases the hole piles right up on top of the ground. Many drillers have set drill pipe in this stuff and pulled the derrick in trying to get it out. Those with that experience will be particularly interested in a development which permits using the casing for drill pipe, pulling out the callapsible bit and cementing the casing that went down on the bit. Page 25.

Magnetometers lost some of their standing in the realm of oil finding when a lot of failures followed drilling. That this cannot all be laid to the instrument is the opinion of at least one authority. He says that the instrument is cheaper than other geophysical paraphernalia, and too often men to run them were selected on the same basis. But that is his story. Page 27.

Building Refineries

And still they build them. Texas is next to California in rated capacity of refineries, but the way construction is progressing the former bids fair to take the lead. With twenty plants in East Texas alone, the state has accounted for a big part of new refinery capacity during recent months. Page 18.

The Oil Man's Calendar

JULY

28-29 *American Institute of Mining and Metallurgical Engineers (Regional), Los Angeles, California.*

AUGUST

10 *Tennessee Oil Men's Association, Nashville, Tennessee.*

22-26 *American Chemical Society, Denver, Colorado.*

23-26 *Pacific Coast Gas Association, Spokane, Washington.*

30-31 *Society of Automotive Engineers, Cleveland, Ohio.*

SEPTEMBER

14-16 *National Petroleum Association, Atlantic City, New Jersey.*

21-23 *North American Gasoline Tax Conference, Philadelphia, Pennsylvania.*

Last Week *Ohio Petroleum Marketers Association, Columbus, Ohio.*

OCTOBER

1 *American Institute of Mining and Metallurgical Engineers, Petroleum Division, Dallas, Texas.*

3- 7 *National Safety Council, Washington, D. C.*

4- 6 *Society of Automotive Engineers, Transportation meeting, Toronto, Canada.*

10-14 *American Gas Association, Atlantic City, New Jersey.*

11-12 *Kentucky Petroleum Marketers Association, Louisville, Kentucky.*

NOVEMBER

10 *California Natural Gasoline Association, Los Angeles, California.*

15-17 *American Petroleum Institute, Houston, Texas.*

DECEMBER

Rocky Mountain Oil and Gas Association, Great Falls, Montana.

5- 9 *American Society of Mechanical Engineers, New York.*

Van Owners Satisfied

Unit operation is no longer an experiment. At least it works when not too many operators are involved, taking Van for an example. Original agreement on this unit provided for adjustment by arbitration at the end of the first period of operation, and the prescribed time has elapsed with engineers of the several companies involved agreed on adjustment of interest on showings of relative value of acreage in the block. Operating economies are obvious. Where outsiders might disturb their interests have been purchased, and land owners have been kept satisfied on their royalty payments, while state supervision of production curtailment is a formality. Page 14.

It is easier to visualize a salt dome than it is to understand how it got there. There have been speculations on how the plug came up from the lower regions with sufficient force to fracture and distort over-lying strata and provide faults for accumulation of oil. Looking upon the mass as a solid rock of salt, first conclusion is that it is as immovable as the celebrated Rock of Gibraltar. But glaciers are known to move of their own weight, so why not a flowing mass of salt. If it flows, and it can be shown that it does, or did when pressures compelled it, how they got there is easier to understand. Page 31.

Pushing Auto Exports

Exporters of American automobiles and automotive equipment in spite of the depression are not relaxing their efforts in foreign markets. This is indicated by the large number of inquiries and demands for services received by the Automotive Division of the Department of Commerce. During the last six months the Automotive Division has had requests for and secured agencies for American passenger cars in India, Denmark, Hong Kong, Norway, Colombia and Brazil and for trucks in Greece and Norway.

It is of considerable interest to the U. S. oil industry which supplies a large part of the fuel and lubricants used by this equipment, that automotive exporters have in no wise relaxed their efforts toward increasing and extending their foreign markets.

Oil Shares Active *and Strong On Optimism of* Earnings Reports

NEW YORK, JULY 29.

SUPPORTED by a background of improved earnings, prices of securities of leading oil concerns have held to the forefront in the advance of exchange listings in the past two weeks. Advances in the oils have been substantial, while the turnover in the oils has been such that the buying can not be classed as speculative.

Atlantic Refining Company, and Phillips Petroleum Company are examples of improved earnings. Each revealed substantial improvement in the second quarter of 1932 as against first quarter of this year and also the second quarter of 1931.

Negotiations for acquisition of Richfield Oil Company and Rio Grande Oil Company properties by Consolidated Oil Corporation also had a helpful tonic on the oil shares. Consummation of this deal this week justified the interest displayed. Consolidated Oil Corporation common was the most active oil on the New York Stock Exchange over the week.

Preliminary reports are that few oil concerns will fail to record improvement for the second quarter of this year. Reports of the larger concerns are far from ready. Executives of Skelly Oil Company, Continental Oil Company, Barnsdall Oil Corporation and others have said that they expect to show favorable statements for the second quarter.

In addition to improved earnings since the advance in crude oil prices April 1, the petroleum stocks have been benefitted by bettered financial positions. The industry is one that is not overburdened with senior securities and bank loans. Of the few that exist, retirement has been effective. Phillips Petroleum Company has made 50 per cent reduction in its outstanding bank loans and the statement of Frank Phillips, president, was that all bank loans would be retired prior to maturity early next year. Standard Oil Company of New Jersey has retired a fourth of its outstanding bonds, while Humble Oil & Refining Company called bonds for redemption when due. Standard Oil Company (Indiana) has called for payments part of the bonds outstanding on the property formerly owned by Sinclair Pipe Line Company.

Continental Oil Company last December called for payment a segment of bonds six months in advance of the due date.

Several oil concerns have been active buyers of their own stocks during depressed periods. Standard Oil Company (Indiana) and Standard Oil Company of New Jersey have followed the practice of buying their own stocks when prices were favorable. Simms Oil Company has been another buyer of its own common stock. Part of this has been retired while some is held in the treasury. Phillips Petroleum Company has bought its own bonds on recessions in the market.

Developments of this sort have given common stocks of the industry an attractive hue to the investor as well as the speculator and the market since its upturn in early July has given every evidence that the oil shares will be one of the leaders in any advance, regardless of its proportions.

Texas Starts New Drive On Proration Violators

Tyler, Texas.—A new drive against alleged proration violators in the East Texas oil field was launched by the state July 28 through the filing of heavy penalty suits by the district attorney for the county in which the offense was committed. For several weeks prior to this action all state and county officials have been busy with election matters, and during this period of inactivity reports of violations have been numerous at widely scattered points in the field.

Penalty suits aggregating $500,000 were filed July 28 by Vernon W. McDavid, district attorney of Rusk County, acting for the state, at Henderson, against Golding-Murchison Oil Company, which has since been dissolved and succeeded by American Liberty Oil Company, also a defendant, Clint W. Murchison, Dudley S. Golding and C. M. Johnson, trustee, all of Dallas. Ten separate suits for alleged overproduction of crude from designated leases were filed against the above defendants.

C. P. Oil Company of Henderson was named as a defendant in a suit filed for penalties aggregating $10,000.

Roumania Holds Up Report of Paris Parley

New York.—Agreement between American, British and Roumanian interests on world oil markets resulted from the Paris conference as indicated in earlier reports. Details have not been made public, since Roumanian representatives asked the privilege of having the accord presented to the Oil Association at Bucharest.

One passage of the agreement reads: "Stabilization will be obtained by reciprocal engagement to respect relative positions as regards exportations of both groups on the market."

In effect this will leave each unit to the agreement to hold its natural market. This should put an end to price reductions and possibly will result in advances.

Sinclair Reaches Pacific *Through Purchase of* Richfield and Rio Grande

LOS ANGELES, JULY 28.

CONSOLIDATED Oil Corporation has completed arrangements for the purchase of properties of both Richfield Oil Company and the Rio Grande Oil Company. These transactions will bring the Sinclair name into Pacific Coast territory as well as add materially to production and refining facilities the concern which grew out of the merger of Sinclair and Prairie companies early this year.

Committees representing bondholders and creditors of Richfield Oil Company announced that terms offered by Consolidated Oil Corporation were acceptable. The deal will involve the cash equivalent of $22,862,000, plus $5,000,000 to satisfy those who did not agree to the Richfield Oil Company reorganization plan; court approval was given the plan, as the company is in federal receivership.

Directors of Rio Grande Oil Company announced that they had agreed to terms submitted by Consolidated Oil Corporation. Stockholders will meet in El Paso September 16 to pass on the action of directors. Rio Grande Oil Company was mentioned frequently as a part of the Consolidation when ne-

gotiations between Prairie Oil & Gas Company and Sinclair Consolidated Oil Corporation were under way. H. F. Sinclair was elected chairman of the Rio Grande Oil Company board but later announced that he had not accepted the position. Announcement at this time seems but a delayed inclusion of properties long looked upon as part of the Consolidated Oil Corporation set-up.

All subsidiaries of the concerns will pass to Consolidated Oil Corporation. In the case of Richfield Oil Company this will include the eastern division.

Richfield Oil Company has a production of 14,250 barrels daily in California and purchases another 15,000 barrels. Potential output of the company's properties is around 23,000 barrels daily. It has 464 producing wells, of which 234 are idle.

Four refineries with daily capacity of 125,000 barrels are part of the properties. Two of these are shut down. The company has three pipe line systems, 10 tankers and three barges and two water terminals. The company has 54 bulk plants and retail service stations in Pacific Coast states.

Rio Grande Oil Company owns a half interest in the Elwood field as well as production at Long Beach. Its refining plants are at Los Angeles, Phoenix, Arizona and El Paso, Texas. It has bulk and retail distribution from El Paso westward to the Pacfic Coast territory.

Terms of the Rio Grande Oil Company purchase involve exchange of five shares of common non-par shares for two shares of Consolidated Oil Corporation common, with the understanding that latter will assume all outstanding liabilities. Rio Grande Oil Company has no funded debt. It has 1,216,700 common shares outstanding.

Negotiations were carried on through Henry Lockhart, Jr., New York investment banker. H. R. Gallagher, president of Consolidated Oil Corporation has been in Los Angeles during progress of the deal. H. F. Sinclair, chairman, will arrive next week to complete arrangements for operation of the west coast properties.

These purchases give Consolidated Oil Corporation national distribution of refined products, refining plants on the Atlantic Seaboard, the Gulf Coast, the Great Lakes, the Mid-Continent and on the Pacific Coast. Its production is in most of the fields of recent development in the United States.

Expect New East Texas Allowable to be 42 Barrels

AUSTIN, TEXAS, JULY 28.

BELIEF that the new East Texas allowable effective on Monday, August 1, would be 42 barrels, was expressed here today. It was indicated that the new figure would not be computed until late Saturday, or possibly Sunday.

Completions have continued at the same rate during the past 15 days as they did during the first half of July, and another four-barrel reduction appears necessary.

Possibilities of complications arising from the setting of an allowable below 40 barrels were expressed by a prominent geologist in a conversation with the correspondent early this week.

He pointed out that 40-barrel producing wells of this depth come under the marginal well law and are exempt from proration by the railroad commission if they are pumping wells.

Plans are under way at the present time to convert these flowing wells to pumpers by the installation of jacks and a small valve in the casing which will take care of the gas.

Should this action be carried out, and be within the meaning of the statute, production from the East Texas field would increase at the rate of 800 barrels per day, until such time as the field was depleted, or drilling at the present rate declined. This would mean an increase of 24,000 barrels per month from August 15 forward.

Winter weather conditions will undoubtedly reduce drilling materially, but completion of wells under way at the present time added to required offsets would increase the number of outlets from the field sufficiently to seriously raise the production from the field if this situation should obtain.

Proration Attack Continues At Houston September 13

Houston, Texas.—Charges are expected to be made by a group of independent operators in the East Texas field that the allowable production per well in the field authorized by the Texas Railroad Commission is confiscatory when the Constantin-Wrather injunction case is tried on its merits before a three-judge Federal Court here September 13. An opinion denying the plaintiffs a temporary restraining order against the commission was released July 19 by Circuit Federal Judge J. C. Hutcheson, Jr., after considering the oral and written evidence and testimony given at a hearing held here May 30 to June 1.

The future of proration in the East Texas field, or the extent that the commission may resort to in throttling the output of wells is as much in doubt as ever since the three-judge court has ordered the case tried on its merits. Operators, expert witnesses and legal powers lending assistance to the Texas Attorney General and Texas Railroad Commission at the Houston trial of the Constantin - Wrather case have expressed surprise that the court has ordered the case tried on its merits, as it is reported that at the time of the trial both defendants and plaintiffs understood that the case was then being tried on its merits.

Unsuccessful efforts were made last week by a group of East Texas operators to obtain a temporary restraining order against the commission's 46-barrel well allowable before Judge Randolph Bryant, who presided with Judge Hutcheson at the Houston trial. Judge Bryant announced that no injunctions would be granted prior to the hearing of the Constantin-Wrather case on its merits.

The forthcoming test case of proration will be bitterly contested by both sides, with the plaintiffs stressing the hazard of having their properties confiscated through repeated reductions in the allowable per well., which usually occurs at 15-day intervals to offset new completions and keep the output of the field in balance with market outlet.

A. I. M. E. Devotes First Session Day to Petroleum

Los Angeles. — Oil field subjects were considered the first day of the regional meeting of the petroleum division of the American Institute of Mining and Metallurgical Engineers July 28. The second day was given to study of gold and silver mining.

Papers read and discussed included "The Killing and Well History of Milham Elliott 1 and Continental Elliott 12-8 wells on the North Dome of Kettleman Hills," by R. A. Silent, chief engineer of Petroleum Securities Company, and N. A. Rousselot, manager of field operations, Milham Exploration Company; "Relation of Porosity to Fundamental Densities of a Porous Substance," by W. O. Smith, Pittsburg; "Basic Economic Principles Applied to the Petroleum Industry," L. P. Stockman, Independent Oil Producers Agency; and "Some Studies on the Porosity and Permeability of Rocks," by Frederick G. Tickell, O. E. Mechen and R. C. McCurdy, all of Stanford University.

A Time for Constructive Thought and Action . . .

EDWARD G. SEUBERT
President Standard Oil Company (Indiana)

EDWARD G. SEUBERT

AT the height of boom times in 1929 there was much talk that we had reached a new level of economic prosperity and that conditions would always be as good as they were then, or better.

Today the pendulum has swung to the other extreme. Talk is heard that there never will be an economic recovery, that still worse times are ahead, that the country is, in fact, going straight to the dogs. As has happened in other times of depression, it has become more or less common to hear loose gossip about the stability of the institutions of our civilization. Such gossip circulates not only among those who are really suffering from the effects of hard times, but also among many who are relatively well situated and have no real cause for fear.

In an atmosphere ot this kind the work of the professional agitator thrives. Suggestions of revolt against the established order of government and society, which would receive no consideration at all in normal times, gain a hearing and take on a certain amount of seriousness. It becomes necessary to oppose destructive talk by constructive thought and action, to meet agitation with calm and courageous reassurance.

Of the necessity of government and of the superiority of the American type of government there is no doubt. The government is the basic and controlling force in the free social and economic organization of which we are part. Whatever its weaknesses, it is the foundation of our civilization and all good citizens must stand for its preservation.

Current conditions call for adoption by the patriotic citizens of something like the same aggressive attitude in protecting his country, his home, and the order of which he is part that he shows especially in time of war.

I feel that the stockholders, managements, and employees of oil companies have a particularly serious responsibility in this respect. While we have had to take a fair share of the blows of the last two years, we have been relatively fortunate as compared with those in some other industry. We are showing some capacity for meeting our problems. If we can do that in our own industry, perhaps our industry can be among those to lead the country out of the bog of despair.

The immediate task is to keep up our morale as individuals and as a group. Every one of us, even if in the most difficult situation ever experienced, must square his shoulders and meet the problem without lack of faith or courage.

Above all, we must hold to the institutions upon which economic stability depends. We must defend them against any threat that may lurk in loose talk of radical nature. Expressions of confidence and loyalty by the stockholders and employees of oil companies can well be a great force toward maintaining or bettering the public morale.

Constructive thinking and constructive action will hasten the recovery.

This is the fourth of a series of interviews from the industry's leaders in response to a request from The Oil Weekly asking for views on what is expected by oil executives of employees at this time and what in their opinions will help to pull the industry out of its present dilemma.—*Editor.*

Proration *on the* Basis *of Uniform Allowable* Gas Production

R. M. BARNES and A. H. BELL
Los Angeles, California

THE ideas set forth in this paper are proposed for consideration and discussion as a result of study during the past few months of various plans for control and proration of gas and oil production from Kettleman North Dome oil field. They would be applicable to any oil field during its flush production stage.

Many are of the opinion that Kettleman North Dome oil field should be considered as containing only one zone to its present total penetrated thickness of nearly 1500 feet, and that the hydrocarbon content of this zone gradually changes from dark and relatively low-gravity oil with relatively low gas-oil ratios on the flanks and plunges, to mostly light-colored and high-gravity oil with high gas-oil ratios in the higher structural positions. At least the lower 400 feet contains dark oil in the higher structural positions.

Down to the 7000-foot structure contour on top of the producing horizon the light oil-bearing formations amount to approximately half of the cubic contents of the zone. These light oil-bearing formations cannot be considered merely a gas cap because, in addition to being capable of producing large quantities of high-gravity crude oil, they have a greater magnitude than an ordinary gas cap would have. Therefore, it is believed that they should be considered coincidentally in the development of the field.

The present tendency in the development of Kettleman North Dome oil field is to case wells in such a manner that they will produce only from the dark oil-bearing formations having low gas-oil ratios, leaving certain wells on top of the structure, which have penetrated only light oil-bearing formations, as stand-by wells to meet gas demand. The general attitude appears to be that gas in the top of the structure should be left to do the work of lifting oil from the lower structural positions by down-structure expansion.

It is the writers' opinion that each well should be so completed that it will have open to production all oil and gas-bearing formations possible, consistent with safety from edge conditions, and that all wells should be produced contemporaneously for the following reasons:

1. Hydrocarbons should be removed uniformly and pressures should be reduced uniformly throughout the entire thickness of the producing zone, in order to recover the maximum quantity of oil at lowest cost.

2. Any sands having higher pressures will first repressure sands of lower pressure, and gas from upper light oil sands, when wells are tubed low, will do work in lifting oil from lower dark oil sands.

3. In the top of the structure lower gas-oil ratios in each well will result if underlying dark oil is produced along with upper light oil and gas.

4. Extra cost of later redrilling and deepening of wells or drilling of twin wells on top of the structure into dark oil-bearing formations would be saved.

The present method of development of a field of the type of Kettleman Hills may result in lower ultimate recovery of hydro-carbons than should be expected, because:

1. Dissipation of gas and necessary distance of travel of gas from the higher portions of the structure to the flanks and plunges will cause light oil to be left in the top of the structure without means of expulsion; and

2. Gas removed by wells with full penetration of productive formations on the flanks and plunges will leave the dark oil-bearing formations near the top of the structure without energy to furnish efficient removal.

In other words, it is probable that much light and dark oil will be left beyond recovery in the higher structural positions by the present method of development.

It is not proposed that wells of high gas-oil ratios in the higher structural positions should be allowed to produce without restriction, and this is where proration on the basis of uniform allowable gas production comes into the picture. Each property should be entitled to its proportion of gas energy contained in a field as a means of recovering its proportion of oil. Gas is more important during the flush stage of production, as it represents capacity to produce oil in large quantities. When the flush stage is over, as the result of depletion of gas, neighboring operators cannot unduly drain each other.

THE accompanying discussion of procedure of conservation of pressures through production control at Kettleman Hills, was presented at the Los Angeles meeting of American Institute of Mining and Metallurgical Engineers, July 28, 1932. While conditions at Kettleman Hills are considered in the discussion, it is pointed out that suggested methods are applicable to any oil field.

The authors both are with California Division, Continental Oil Company, Mr. Barnes as chief geologist, and Mr. Bell as production superintendent.

Unit Groups

It is proposed that gas, rather than oil, should be removed at as nearly a uniform rate as possible per unit of area. An oil field would be divided into groups of unit areas (this is not to be confused with "unit operation" or "unitization") according to competitive conditions and position on structure, with the groups so selected that subsurface conditions therein are nearly uniform and so that *oil and gas production* within a group can be prorated on an acreage basis. For Kettleman Hills 160 acres would be a suitable unit. In other flush fields some smaller unit might be more satisfactory. The problem divides itself into two parts as follows:

1. Although conditions within a selected group may be similar, gas-oil ratios will vary and it will become necessary to prorate both oil and gas within the groups on an equitable basis. A formula has been developed for this purpose under the illustration given later.

2. The average rate of gas production per unit area within a group should be no greater in the high gas-oil ratio groups or portions of a field than in the low gas-oil ratio portions.

The starting point would be the oil requirements of the field or, as in the case of Kettleman Hills, the oil requirements and resultant gas production of two low structurally competitive areas. In other words, approximately equal quantities of gas would be produced per unit area in each group during the flush period of production with the anticipated result that:

1. Dissipation of reservoir energy would be prevented.

2. Conditions underground would be held static or in balance as to drainage across property lines and between high and low gas-oil ratio areas.

3. There would be an incentive for low gas-oil ratios and initiative in good production practice would be encouraged. Any apparent difficulties of this system on account of differences in ratios, would soon be eliminated by the ingenuity of operators in reducing ratios.

4. After normal encroachment of edge-water there would still be enough gas left in the higher structural positions to remove oil therefrom efficiently.

5. The effect would be much the same

as proration on the basis of uniform reduction of "bottom hole pressures."

6. The system in general would serve as an inducement to reduce ratios by way of a reward of greater allowable oil production. It would do more to conserve gas than any law or court action and would thus be a substitute for law.

The following example of proration under this system is set up for the sake of illustration:

Assume field allowable oil, 85,000 barrels per day. Field can be divided into five production groups according to competitive conditions and position on structure and so selected that oil and gas production within a group can be prorated on an acreage basis.

Operators A. B. C. D. E. F. and G. Groups I and II have relatively low gas-oil ratios from which the average quantity of gas produced per unit area will control quantity of gas which can be removed from the higher ratio areas.

Part 1

Assume one barrel of oil = 10,000 cubic feet of gas based on calculation of monetary and energy value. An allowable oil production can be set up for each low ratio competitive group.

GROUP I — Nine and a half — 160-acre Tracts = 1520 acres;
A = 4, B = 3½, C = 1, D = 1

Operator	Average Normal Operating G/O Ratio (R)	Allowable Oil per day-bbl. Straight Acreage Basis	Calculated Corrected Allowable Oil per day-bbl. (X)	Consequent Gas per day, M. Cu. Ft.	Gas per 160 Acres M. Cu. Ft.
A	3,000	18,500	19,100	57,300	14,300
B	4,200	16,300	15,400	64,700	18,500
C	2,000	4,600	5,200	10,400	10,400
D	4,500	4,600	4,300	19,300	19,300
Average 3,500 (R_a)			(a) 44,000 bbl.	151,700 M. Cu. Ft.	Average 16,000

(a) Group allowable.

GROUP II — Six and a half — 160-acre Tracts = 1,000 Acres;
A = 3, B = 2, E = ⅝, F = ½, G = ⅜.

A	2,800	12,400	12,100	33,900	11,300
B	1,500	8,300	9,000	13,500	6,700
E	4,000	2,600	2,300	9,200	14,700
F	4,000	2,100	1,900	7,600	15,200
G	1,500	1,600	1,700	2,500	6,800
Average 2,550 (R_a)			(b) 27,000 bbl.	66,700 M. Cu. Ft.	Average 10,300

(b) Group allowable.

average 13,000

Part 2.

GROUP III — Four 160-acre Tracts = 640 acres; A = 2, B = 2.

Operator	Average Normal Operating G/O Ratio	Calculated Allowable Oil Per Day-bbl.	Calculated Allowable Gas per day M. Cu. Ft.	Assigned Allowable Gas per 160 A M. Cu. Ft.
A	20,000	1,300	26,000	13,000
B	20,000	1,300	26,000	13,000
		2,600 bbls.	52,000 M. Cu. Ft.	

GROUP IV — Two 160-acre Tracts = 320 acres; A = 1, B = 1.

A	10,000	1,300	13,000	13,000
B	10,000	1,300	13,000	13,000

GROUP V — Two 160-acre Tracts = 320 Acres; A = 1., B = 1.

A	2,500	4,400	11,300	*11,300
B	2,500	4,400	11,300	*11,300
		8,800 bbls.	22,600 M. Cu. Ft.	
Grand Total Daily		85,000 bbls. oil	319,000 M. Cu. Ft. gas	

*Less than allowable of 13,000 M. Cu. Ft. per 160 acres.

Let X = Allowable oil production to be determined in barrels per day for each operator in group.

P = Allowable oil production of group in barrels per day.

G = Corresponding gas production of group in M. cu. ft. per day (will vary with X and must be approximated as shown below).

R = Average gas-oil ratio for operator.

R_a = Average gas-oil ratio for group.

A = Total acreage or units in group.

A′ = Operator's acreage or units in group.

Then

$$\frac{A'}{A}\left(P+\frac{G}{10{,}000}\right)=\frac{RX}{10{,}000}+X$$

$$\frac{A'P}{A}+\frac{A'G}{10{,}000}=\frac{RX}{10{,}000}+X$$

$$10{,}000\ A'P+A'G=ARX+10{,}000\,AX$$
$$=X(AR+10{,}000\,A)$$

$$X=\frac{10{,}000\,A'P+A'G}{AR+10{,}000\,A}$$

$$X=\frac{A'(10{,}000\,P+G)}{A(R+10{,}000)}$$

and $G=PR_a$

Therefore $$X=\frac{A'}{A}\,\frac{(10{,}000\,P+PR_a)}{(R+10{,}000)}$$

It can be seen that this formula provides for oil and gas production on a straight acreage basis with corrections, using one barrel of oil equivalent to 10,000 cubic feet of gas, allowing more oil production when the gas-oil ratio can be brought below the average and allowing less oil production than on a straight acreage basis where the gas-oil ratio exceeds the average.

The calculated schedule given is purely illustrative and, although the method should remain the same, details would vary according to conditions found in each field. Calculations are, and will be, approximate but close enough for proration purposes.

A practical manner of applying the method of proration would be to calculate allowables for one month ahead based upon field records of one month back; i.e., calculations made in July could be based on June data and applied to August allowables. Such a procedure would meet changing conditions and give each operator the benefit of more efficient operations.

Unit Operation *Proves Satisfactory and Profitable* As Practiced At Van

H. H. KING
Staff Representative

THE five companies participating in the unitized block of producing leases in the Van field, Central East Texas, have completed the first adjustment of their respective interests without enlisting the services of disinterested engineers, as provided for in the unit contract. The second and final adjustment of interests will occur November 1, 1934, being the end of the first five years of unit operations. Unanimous approval of unitization as practiced at Van is given by these five participants. Conservation of both oil and gas production in this small but extremely prolific field has been rigidly observed, while economy in operations has been enjoyed while utilizing all the generally accepted modern methods of developing and operating a property of this type.

Adoption of the unit plan at Van took place on November 1, 1929, within a month after completion of the discovery well on the W. T. Jarman 132.8-acre lease by Pure Oil Company on October 13. This move forestalled a competitive drilling program. The crude market was protected from a flood of high gravity oil that could have exceeded the spectacular performance of the Mexia, Corsicana-Powell and Wortham fields, which produced from the same sand formation.

Based on surface contours and subsurface geology obtained from extensive core drilling in advance of the sinking of the first test to the Woodbine sand at Van, the prospective unit members accepted a block of 5800 acres as being the probable productive area. Pure Oil Company predominated as lease owner within this block. The company was awarded the privilege of setting up a separate field organization to function solely on unitized acreage because of being principal contributor, and also for having uncovered the field. L. E. Lewis has been superintendent in charge of operations throughout.

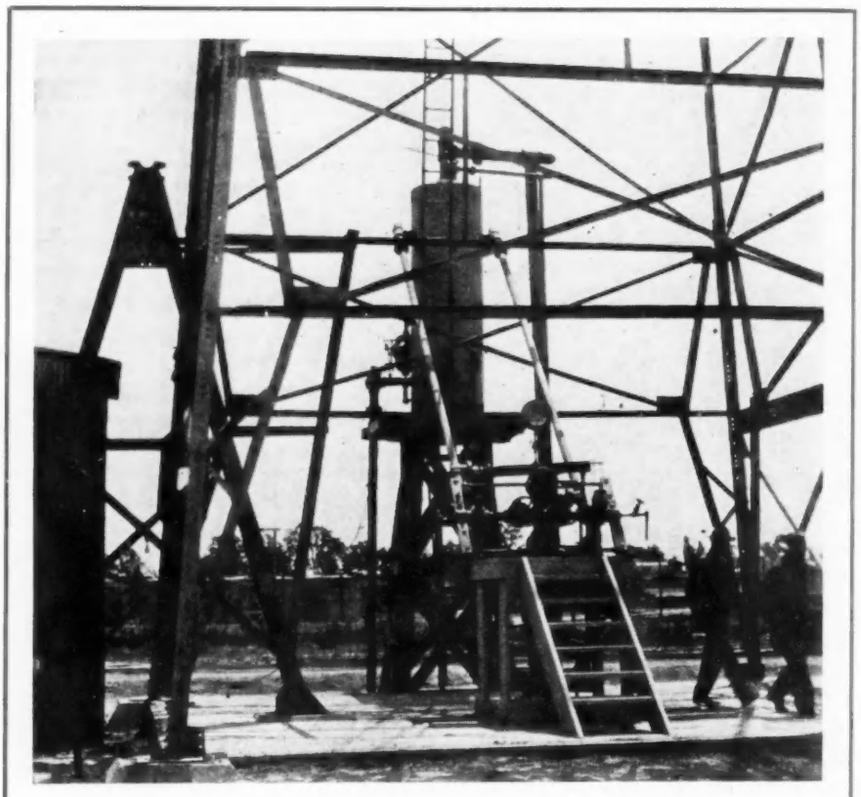
Interest Adjustment

A comparison of the percentage of the 5800-acre unit held by each contributor at the beginning, and on May 1, 1932, is made in the table below:

	Percentage	
Company—	11-1-29	5-1-32
Pure Oil Company	81.70	77.06
Humble Oil & Refining Co..	7.75	0.66
The Texas Company	4.51	8.54
Sun Oil Company	3.57	5.58
Shell Petroleum Corp.....	2.47	8.16

The interests allocated at the beginning of the unit plan were based on acreage which was then believed to cover the productive territory, based on geological information and the lone oil producer then in the field. The unit contract provided that the percentages set out at the start should be "tentative only and that the interests of the parties hereto in the joint acreage * * * in which the parties will share in the products and proceeds from and contribute to the exploration, developing and operating expenses on said joint acreage shall be tentatively adjusted at the expiration of 2½ years from November 1, 1929, by a re-evaluation of the several oil and gas leases owned by each party, and included within the unit block, based upon the ultimate productivity of such leases arrived at by a consideration of all evidence thereon then available. At the end of the first 2½ years such adjusted interest of each party shall be the ratio of the ultimate productivity of the leases owned within said area by such party on October 20, 1929, to the ultimate porductivity of all such leases owned on said date within said area by all parties hereto."

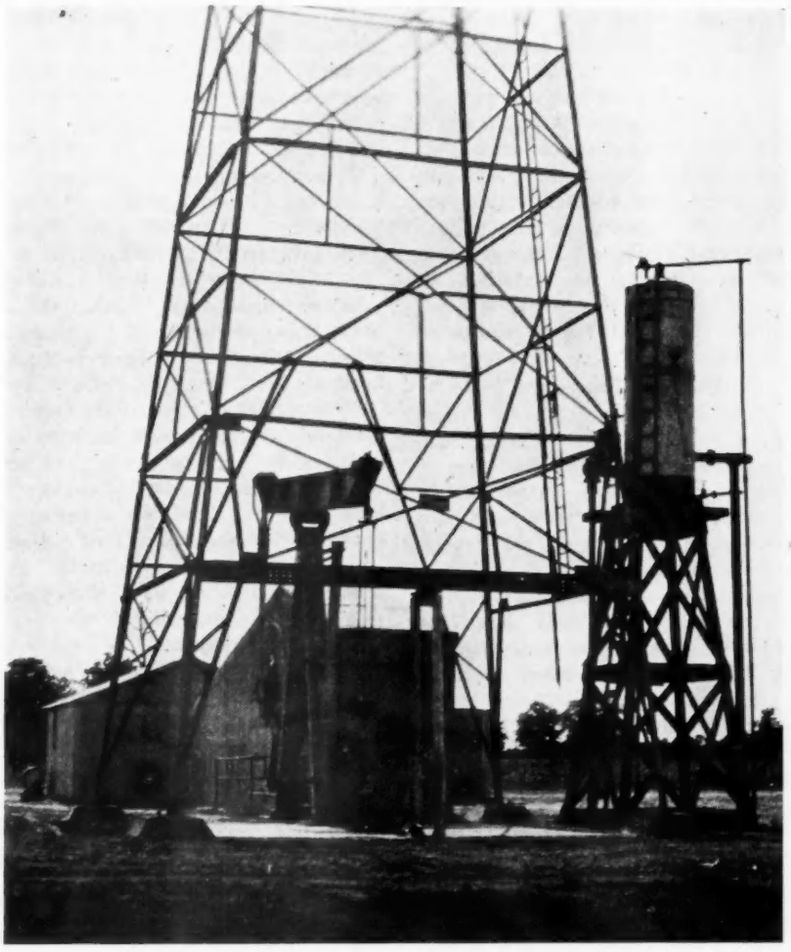
The unit plan called for the members to undertake to agree upon a re-evaluation, but in event of failure provisions were made to engage three petroleum engineers to make a re-evaluation of the leases. Should this procedure and result be protested, the plan called for the appointment of a committee of three petroleum engineers to be selected by the president of the American Institute of Mining & Metallurgical Engineers, director of the United States Bureau of Mines, and the president of the American Association of Petroleum Geologists, with the director of the United States Geological Survey as a proxy in the event either of the last two parties refused to participate in the selection. The decision of the engineers appointed is to be final.



Hook-Up on the Discovery Well at Van. This Conection Has Been Slightly Modified in the Standrd Adopted for the Field.

Engineers Agree

Engagement of outside engineers to make the first re-evaluation was not necessary, as engineers representing each of the unit members prepared a report based on development and production data accumu-



Neatness and Economy Are Both Evidenced in the Appearnce of Pumping Wells at Van

lated during the first 2½ years of unitization. This report has since been endorsed by the unit operating committee, and the revision of interests as outlined in the above table stands until the close of the second, or final re-evaluation. Cash rebates and refunds have since been made, with six per cent interest applying, on funds changing hands by reason of the adjustment. It is quite evident that the unitized acreage reached a profit earning basis prior to the expiration of the first period, as the average oil recovery per completed well had approached 100,000 barrels.

Pure Oil Company weathered the first re-evaluation period with a loss of only 4.64 per cent, retaining its dominating position with 77.06 per cent of the total. Humble Oil & Refining Company sustained the greatest loss, having dropped from second place to the smallest share holder, due to its contribution to the pooled acreage having yielded only a few small wells. On the other hand this company shared liberally in the non-unitized producing area, and ranks as the second largest owner in the field. Its interest in the unit dropped from 7.75 to 0.66 per cent. The other three unit members fared better on scoring production on acreage contributed to the unit block, and each gained at the above two concern's expense.

Final determination of the proportionate interest held by each member in the unit block will occur by a second re-evaluation to be carried out on the same basis as the first effective November 1, 1934. The division of interests made by agreement of all parties at the end of the five-year period shall be final and binding upon all parties, according to the contract, and each member agrees to pay to the other members any amounts required to effectuate the adjustments in accounts as provided for. These various agreements and settlements apply only to oil and gas production obtained from the Woodbine sand, and in the event of the discovery of a lower producing horizon during the life of the unit same is to be treated as a separate field, with Pure Oil Company operating. However, the possibilities of a lower horizon were dimmed when a 7501-foot dry hole was completed early last March on the north end of the area. At a later stage of development a second deep test will probably be drilled on the south or southeast side of the pronounced fault that cuts across the field in a northeast to southwest direction.

Four tests drilled near the discovery well were started late in 1929 as a forerunner of an extensive development program within the unit. The completions that followed confirmed the potential value of the field. The discovery well was halted at 2710 feet in what later proved to be the top section of the Woodbine, and flowed 1790 barrels of 35.4 gravity oil on its best gauge. It was deepened and recompleted August 3, 1930, at 2947 feet, or 2450 feet below sea level, for an average producer of 111 barrels oil per hour, 11/16-inch choke on 2½-inch tubing.

First knowledge that the unit failed to cover the producing area was gained when Humble Oil & Refining Company, operating independently, completed Mrs. E. E. Carroll 1, northeast of the pooled acreage, flowing at 2932 feet on June 26, 1930. This outpost provided an important extension to the field, and proved a large non-unitized acreage held by four other unit members and also a few claimants of excess strips of leases.

Special effort was made to form a separate unit to operate this east side acreage, but the plan fell through for lack of unanimous support and also because of inability to agree on which company should be given unit operating rights. Development of this non-unitized acreage later placed Pure Oil Company, The Texas Company and Shell Petroleum Corporation into production, with each maintaining a separate field organization, but adhering to the same drilling and production practices as carried on within the unit block. Pure Oil Company later succeeded in placing leases on production on the southwest and south sides of the pooled acreage, using an entirely separate field organization in handling its non-unitized properties. At all times the non-unitized wells have been restricted in production to an equal basis with those in the unit. No confusion, or complaints have occurred under such an arrangement.

The productive limits of the Van field became completely defined within the first 2½ years of unitization, thus simplifying the details of making the first adjustment of interests, as called for in the pooling agreement. The oil area amounts to approximately 4500 acres, of which 78 per cent is unitized, and the remaining 22 per cent is held by four companies.

Production of the field had reached an aggregate of approximately 32,109,324 barrels at the close of June, 1932, with 327 completed oil wells and five gas wells. At no time has the field surpassed its present proration allowance of 50,000 bar-

rels daily. This field has the distinction of having never produced a well as much as 5000 barrels daily within a 24-hour period in its history, although it has several hundred producers that are rated good for many times such a volume without difficulty. Strict adherence to gas conservation and maintenance of uniform reservoir pressure has been valued above the desire to learn the maximum flowing capacity of some of the big wells, which in some cases are unofficially rated good for as much as 50,000 barrels on open flow. Wells falling within this classification have up to 500 feet of almost solid Woodbine sand. No other Woodbine sand area in the state offers such a thick sand body.

Crude production by years from the Van field is listed below:

Year	Barrels
1929	150,068
1930	7,530,727
1931	15,614,610
1932 (6 months)	8,813,919
Total	32,109,324

Pure Oil Company and Humble Oil & Refining Company are the only crude purchasers serving the Van field, and make deliveries via their respective 10-inch trunk lines. The unitized leases are assured by contract of receiving the "Mid-Continent price" for all production. This provision protects unit members and royalty owners from low prices when quotations in Texas are below those posted in the upper Mid-Continent as has been the case in a number of instances in recent years. The "Mid-Continent price" is interpreted as meaning the prevailing per barrel price existing in the Mid-Continent area, embracing Kansas, Oklahoma, and North and Central Texas for oil of similar gravity on the dates of respective runs to pipe line or storage. Each unit member enjoys at all times "the right to take in kind or otherwise dispose of its proportionate share of the oil produced," or may require the purchase by Pure Oil Company of such oil in the field at the Mid-Continent price. Occasional deliveries of Van crude have been made at tidewater by the two pipe line concerns serving the field to unit members without private transportation facilities. The two purchasers have lined up steady market outlets for the current supply, and no confusion has arisen over the disposition of the production.

Uniform Procedure

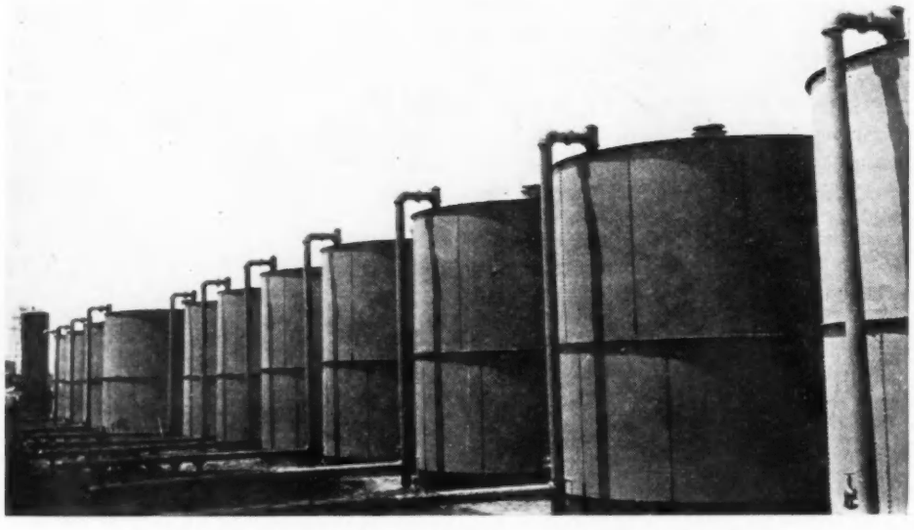
Cores of the entire section of Woodbine sand formation above 2450 feet subsea, which is the accepted dead line on drilling as a safeguard against bottom hole water, were taken from each well without exception during the early stages of development. The recovered cores were carefully studied in regard to saturation and permeability. All wells have been drilled with rotary and uniformly equipped, using 10¾-inch surface casing at about 300 feet, with seven-inch casing landed above the Woodbine sand. Liners are generally used. Wells were equipped with 2½-inch tubing in advance of swabbing into completion. All flowing wells are tested for three consecutive hours upon completion through 11/16-inch choke on tubing, and gauges made of the gas yield, oil gravity and temperature. Casing and tubing pressure readings are constantly recorded on all flowing wells. Special precaution has been taken against flowing any well of any appreciable size without chokes.

Water has appeared in a few of the structurally low wells, but with close observance of proration restrictions, which were voluntary at the start of developments and transferred to the direct supervision of the Texas Railroad Commission on August 15, 1930, no great volume of salt water has been produced by the field. A water disposal unit has been installed to accommodate that being produced as a preventive measure against possible stream and soil pollution.

Twenty-five dry holes have been completed in defining the productive limits of the field, including 17 within the unit block. Independent operators drilled seven dry holes, including two on alleged vacancy strips of land within the unit block, reasonably close to the producing area in their efforts to share in the production.

Shortly after creation of the unit block a number of claims were made by independents to vacancy strips, and small tracts overlooked when the majors first leased the area, but these outsides were excluded through payment of attractive lease prices by the unit group. Independents also held several small drilling sites within the producing area but outside the unit. Approximately $1,000,000 cash was expended by those now in possession of the Van field in acquiring these outstanding interests, which were invariably opposed to proration of crude runs. Violators of proration in this field would have forced the sacrifice of the many conservation policies now practiced on both unitized and non-unit leases, as affected royalty owners would have demanded an equalization of oil and gas drainage at all times.

Release of approximately 1350 acres of the original unit block of leases was recently approved by the unit operating committee on the strength of dry holes having omitted such acreage from possible production in the Woodbine horizon. The bulk of this lies on the north and west flanks of the block, and consisted mostly of short term leases.



Typical Battery of Field Tanks at Van. Each Battery is Dyked With Manifold Inside the Dyke.

MEN IN THE INDUSTRY'S NEWS

J. G. FARQUHAR, former vice-president and treasurer of Big Lake Oil Company, owner of a major portion of the Big Lake field in West Texas, has been elected president of the company, succeeding Levi Smith, who died July 10. Joe C. Trees, Pittsburgh, was elected chairman of the board, a newly created office. Chas. E. Beyer, Texon, Texas, who has been general manager, has been made a vice president and is to be in charge of field operations, with headquarters at the Big Lake field camp.

LUIS E. KEMNITZER has returned from Germany after acting for more than two years as geologist for the Cities Service Company in that country. He will enter upon a period of private research at the California Institute of Technology making the subject of his studies the geology and oil and gas resources of the islands off the coast of Southern California.

E. A. CARR, district engineer in the southwestern division of the Pure Oil Company, has been made assistant to manager John R. McNutt.

ED POWELL, who represented Ohio Injector Company in the southwest for a number of years, is now connected with Amulco Products, Inc., and will continue to maintain headquarters in Tulsa.

ROSS McCOLLUM

Ross McCollum, director and manager of the production department of Signal Oil and Gas Company of Los Angeles. McCollum has been with the company about four years. He was with Standard Oil Company of California for 11 years and was manager of gasoline plants at the time of his resignation.

JAMES G. CLOUD independent operator of Tulsa, has resigned as president of the Oklahoma division, Independent Petroleum Association of America. His successor will not be made known until the annual meeting which was to have taken place this summer at Wichita, Kansas, but which has been postponed until later in the year.

J. S. ROSS, petroleum engineer for the Southern States Company of Shreveport, Louisiana, is spending the summer in California.

T. E. SWIGART, production superintendent for Shell Oil Company of California, has been called to The Hague, and will not return to the United States until the late summer.

WILLIAM KECK, president of Superior Oil Company of Los Angeles and chairman of the executive committee on curtailment in California, is inspecting properties in Texas.

E. M. SMITH, president, and W. A. Trout, vice president, Emsco Derrick & Equipment Company, left Los Angeles headquarters July 23 for Colorado Springs where they will spend several days on combined business and pleasure.

W. D. SHAFFER, owner of Shaffer Tool Works, Brea, California, spent several days early in July in San Francisco.

NEAL H. ANDERSON, retiring oil umpire for California, has booked passage for himself and family on the S.S. Mariposa for a leisurely visit to points of interest in the Orient.

JOSEPH JENSEN, chief petroleum engineer with the Associated Oil Company, Los Angeles, spent the first three weeks in July on a tour of the Pacific Northwest with his family.

DAVE DONOGHUE of Fort Worth, geologist, engineer, former technical adviser of the Central Proration Committee of Texas, and now receiver for several oil companies was in Houston during the past week in connection with work as an expert witness in a law suit between The Texas Company and Hogg Brothers.

H. D. WILDE, JR.

H. D. Wilde, Jr., research engineer, Humble Oil & Refining Company, Houston, became associated with that company in 1927, and has done work in both refinery and production departments. The first two years of his service with the company were spent at Baytown, where he did refinery research work. He then entered the production department, where he has since been engaged in research work on problems in that division.

Born in Aguascalientes, Mexico, September 25, 1900, Wilde lived in the southern republic until he was 13 years old. He was educated in high school at San Texas, and later went to Massachusetts Antonio, Texas, and at the University of Institute of Technology. At the latter university he acquired the degree of Doctor of Science in 1929, having gone back for it after becoming associated with Humble Oil & Refining Company.

G. R. AMES, has been made division manager at Wichita, Kansas, for Phillips Petroleum Company. Mr. Ames succeeds H. O. Hulsey, resigned. His territory includes Kansas and Colorado.

R. G. De La MATER, engineer for the Parkersburg Rig & Reel Company with headquarters at Parkersburg, W. Va., has concluded a visit to the East Texas oil field and departed for California.

JOHN R. SUMAN and W. W. Scott, director and chief petroleum engineer, respectively, of Humble Oil & Refining Company, Houston, and H. H. Hill, chief production engineer of Standard Oil Development Company; E. L. Estabrook, director and petroleum engineer of the newly formed Pan American Foreign Corporation, returned to the United States last week from South America, where they inspected Venezuelan properties recently acquired from Standard Oil Company (Indiana) by Standard Oil Company of New Jersey.

At the same time, E. J. Sadler, vice-president of Standard Oil Company of New Jersey, and W. Armstrong, director of Pan American Foreign Corporation, both of whom had been inspecting Eastern Venezuelan properties of the parent company arrived in the United States.

W. B. PYRON, vice president, Western Gulf Oil Company, with headquarters in Los Angeles, and Lieutenant-Colonel in the Texas National Guard, has returned to Los Angeles after spending two weeks with the guard in annual encampment in Texas.

L. A. COOKE, district production superintendent for a number of years in the Drumright district for Shell Petroleum Corporation, has been transferred from that district and will be in charge of the company's production in the Marshall-Lovell area of Logan County. Mr. Cook has been an active worker in affairs of the Drumright chapter, American Petroleum Institute.

G. T. MOIR has been made chief exploitation engineer for Shell Oil Company in the Los Angeles office, having succeeded Logan Burrell.

CHARLES H. LANE, president The Thrift Corporation has returned to Houston after a week's business trip to California.

TOM ALEXANDER, Mid-Continent representative of E. H. Edwards Company, with headquarters in Tulsa, was in Houston last week with Allyn Wood, secretary of the company in connection with the distribution of the company's product.

PAUL L. VAUDOIT of Houston, chief exploitation engineer of the Gulf Coast division for Shell Petroleum Corporation, sailed recently for the Hague, Holland, where he will spend four or five months at headquarters.

East Texas *Big Influence in Construction of* New Refineries

AS a refining state Texas leads the country in number of completed plants, having a total of 124 refineries, of which 85 are reported operating and 39 shut down. In capacity of plants, Texas is exceeded by California which has a total capacity of 940,760 barrels (through 74 plants, 19 of which are shut down) as compared to Texas with a capacity of 935,065 barrels. During the past year Texas has added some 75,000 barrels capacity to its refining industry, and accounts, in a large measure for the increase in refining capacity of this country to over 4,000,000 barrels, as of January 1, 1932. In East Texas alone 20 refineries have been erected during the past 18 months. Additional construction work and establishment of new plants has been shown in North, Central and West Texas, as is shown in the accompanying tabulation:

Refinery Construction Activity in Texas During 1931-32

Company—	Daily Capacity	Plant Location	Railroad Connection
East Texas			
Arrow Refining Co., Fort Worth	2,500	Overton	I&GN
Beacon Oil & Refining Co., Henderson	2,500	NW Henderson	I&GN
Boone Refining Co., Arp	1,000	Arp	I&GN
Central Refining Co.	10,000	Friar	I&GN
Constantin Refining Co., Dallas	2,500	Overton	I&GN
Diamond Oil & Ref. Co., (Rusk) Overton	3,000	Overton	I&GN
East Texas Refining Co., Dallas	12,000	Longview Junct.	Santa Fe
East Texas Refining Co., Dallas	6,000	Friar	I&GN
Gladetex Refining Co., Gladewater	750	Gladewater	T&P
Gladewater Refining Co., Gladewater	800	Gladewater	T&P
Guillory Refining Co., Kilgore	500	Kilgore	I&GN
H. & M. Refining Co., Gladewater	500	Gladewater	T&P
Kilgore Refining Co., Overton	1,500	Kilgore	I&GN
Overton Refining Co., Overton	3,500	Overton	I&GN
Petroleum Refractionating Corp., Ft. Worth	10,000	Footes	I&GN
Sinclair Refining Co., Fort Worth	5,000	Gladewater	T&P
Slack Petroleum Co., Tulsa	2,500	Camps Switch	T&P
Southern Oil Refining Co., Longview	500	Reeds Switch	I&GN
Taylor Refining Co., Tyler	15,000	Tyler	Cotton Belt
V. O. E. Refining Co., Gladewater	1,000	Gladewater	T&P
Central Texas			
Master Petroleum Co., Waco	1,000	Waco	Cotton Belt
Gulf Coast			
Conroe Refining Co., Conroe	100	Conroe	....
Peterson-Woodruff Oil Co., Harlingen	1,000	Harlingen	....
Rado Refining & Producing Co., Ft. Worth	*600	Laredo	Tex-Mex
Republic Oil Refining Co., Houston	5,000	Texas City	....
Valley Refining Co., McAllen	300	McAllen	....
Central West Texas			
Blue Bonnett Refining Co., Brownwood	200	Brownwood	....
Carson Refining Co., Brady	150	Brady	....
Goss Brothers, Rising Star	50	Rising Star	....
Mid-Texas Petroleum Corp., Okla. City	250	Eliasville	WF&S
O-Bar Refining Co., Coleman	500	Coleman	Santa Fe
Octane Refining Co., Baird	1,500	Chautauquaha	T&P
Penn-Tex Producing & Ref. Corp., Echo	300	Echo	....
Sinclair Refining Co., Fort Worth	*5,000	Fort Worth	Ft. W&D.
Starlite Refining Co., Breckenridge	100	Breckenridge	....
Wilson & Swain, Woodson	50	Woodson	....
West Texas			
Aero Gas Refining Co., Inc., Fort Stockton	100	Fort Stockton	Santa Fe
Concho Refining Co., San Angelo	500	San Angelo	Santa Fe
Moutray Ref. Co., Abilene	1,000	Hawley	W. V.
Mentone Oil & Refining Co., Mentone	1,000	Arno	Santa Fe
W. O. Stowell, Mertzon	100	Mertzon	Santa Fe
North Texas			
Belknap Refining Co., New Castle	150	New Castle	W.F.&S.
Jacob Oil & Gas Co., Graham	500	New Castle	....
Norgold Refining Co., Olney	200	Olney	W.F.&S.
Pilot Point Refining Co., Pilot Point	500	Pilot Point	T&P
Will C. Young Refining Co., Archer City	250	Archer City	W.F.&S.
Texas Panhandle			
Apache Refining Co. (Sunray), Tulsa	5,000	Sunray	Rock Island

*Reconditioned.

MARKETS ~ STATISTICS

Daily Output Within Throwing Distance of Mark Suggested By Thurman Hill; Mid-Continent Refined Market Holding Firm; Rough Spots in California.

Industry Quickly Checks Upward Production Trend

ALTHOUGH it had allowed crude oil output to spurt temporarily upward during the previous week, the producing branch of the petroleum industry in the United States summarily changed that trend during the week ending July 30, holding total output of the nation down to an average of 2,140,000 barrels daily, or 48,105 barrels less per day than for the previous week.

In tribute to the state of Oklahoma and to the Oklahoma City field in particular, it should be pointed out that while they had been largely responsible for the jump in production during the week ending July 23, they are due practically all credit for the comfortable decline registered by the nation in the week ended July 30. In fact, the Oklahoma decline was greater than that of the nation, and if other states had all even held their output unchanged the country's total decrease would have been greater. The Oklahoma daily average was only 393,950 barrels, or practically 60,000 barrels less than during the previous week, Oklahoma City field coming down 52,000 barrels to 73,890 barrels daily, and the Seminole district declining 7000 barrels in daily output to 133,000 barrels, while other fields in the state taken collectively were virtually unchanged.

The outstanding instance in which production was allowed to increase and consequently to partially invalidate the Oklahoma decline was in Texas, where production was maintained at an average daily rate nearly 10,000 barrels higher than during the previous week, the figure for the week of July 30 being 879,330 barrels. Of that increase the East Texas field was responsible for almost 8000 barrels, producing an average of 346,600 barrels, although it had been anticipated that effectiveness of a lowered per-well daily allowable would bring production down instead of permitting the increase. The official quota set by the railroad commission for wells in that field the latter half of July is 46 barrels daily as against 50 barrels the first half of the month. But the reduction was apparently more than offset by increasing numbers of producing wells. With more than 7000 producing wells in the field already, new ones are coming in at the rate of almost 20 daily.

The recent trend of production in the area indicates that the railroad commission will be obliged to make another cut in the per-well quota in revising the allowances August 1 if it is to succeed in holding the field's production to 325,000 barrels daily. In attempting to keep in effect such a maximum the commission has been making semi-monthly downward revisions in the per-well daily allowable in order to offset the ever-increasing number of wells.

Outside of the East Texas field there were no production fluctuations of great importance. A 2000-barrel increase in South Texas was compensated by a similar decrease in the salt dome region, and Panhandle fields registered a slight increase.

California as a whole showed a 1000-barrel increase in average daily production in spite of important reductions made in some fields, as for instance Long Beach, where the output was cut from 69,000 to 60,000 barrels daily. The state's daily average for the week was 470,000 barrels.

Outside of the above mentioned states there were no noteworthy changes in rate of production, Kansas, Louisiana, and Arkansas producing at about the same rates as during the previous week, and a slight increase in the Rocky Mountain region being about offset by lowered production in the Eastern States.

THE OIL WEEKLY

(Estimated Daily Average Production in Barrels) Week Ending July 30, 1932

District	For Week Ending July 30	July 23
TEXAS—		
Texas Panhandle	52,780	51,950
North and West Central Texas	74,500	74,100
West Texas	174,450	173,980
East Central Texas	57,200	57,000
East Texas Field	346,600	338,800
South Texas	57,700	55,875
Total Texas outside of Gulf Coast	763,230	751,705
Texas Gulf Coast	116,100	118,100
Total Texas	879,330	869,805
OKLAHOMA—		
Oklahoma City	73,890	125,950
Seminole	133,000	140,000
Other Oklahoma	187,060	187,750
Total Oklahoma	393,950	453,700
KANSAS—		
Ritz-Decker	13,150	11,950
Voshell	6,250	6,060
Other Kansas	76,320	78,240
Total Kansas	95,720	96,250
LOUISIANA—		
North Louisiana	29,300	29,200
Louisiana Gulf Coast	33,000	32,300
Total Louisiana	62,300	61,500
Arkansas	33,700	33,600
CALIFORNIA—		
Long Beach	60,000	69,000
Santa Fe Springs	58,000	58,600
Midway-Sunset	50,000	50,000
Kettleman Hills	61,000	61,500
Other California	241,000	229,900
Total California	470,000	469,000
MOUNTAIN STATES—		
Wyoming	35,900	34,250
Colorado	2,850	2,900
Montana	7,700	7,350
New Mexico	36,100	35,700
Total Rocky Mountain States	82,550	80,200
Eastern States*	122,450	124,050
Total United States	2,140,000	2.188,105

*Includes Michigan.

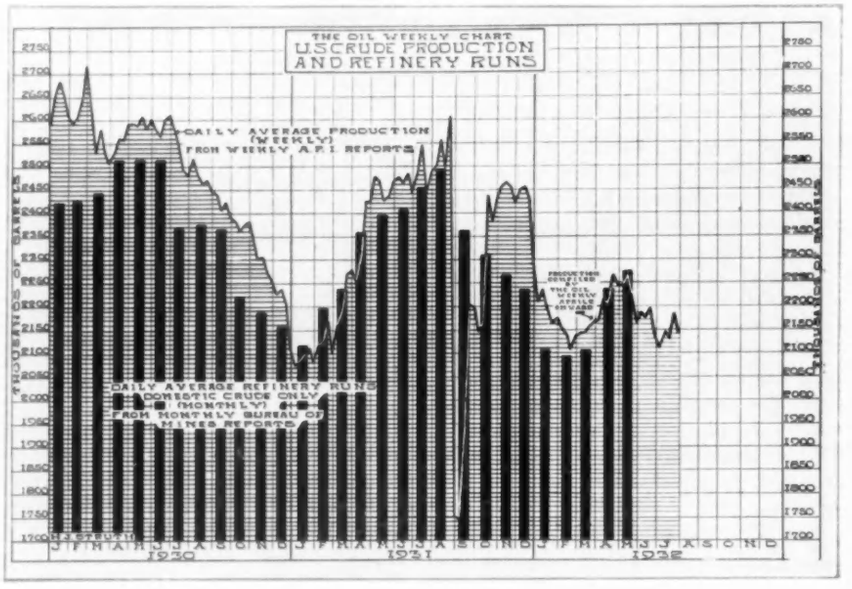
Mid-Continent Refined Oil Market Holds Firm

THE Mid-Continent market last week remained practically unchanged from the condition which prevailed the preceeding week. After showing considerable strength during the latter part of the week ending July 23 and on the following Monday, a slight sag developed and prices dropped an average of about one-eighth of a cent. This condition prevailed for two or three days and at the end of the current week the one-eighth cent decrease had been wiped out.

Indicated gasoline consumption in Oklahoma based on records from the state auditor's office showed a decrease during three of the first five months of 1932 and an increase the other two months as compared with figures for 1931. The comparison, as made by the College of Business, University of Oklahoma, is as follows:

	Gallons Consumed (Million gallons) 1932	1931	Increase or Decrease %
January	21.3	23.6	—9.8
February	19.7	21.5	—8.4
March	22.4	22.2	0.9
April	22.4	21.6	3.7
May	20.8	24.2	—14.0

Figures for June are not yet available but due to the buying spree early in that month it is believed that the decrease will be considerably less than the 14 per cent shown in May, and possibly the June movement may show an increase over that


THE OIL WEEKLY CHART
U.S. CRUDE PRODUCTION AND REFINERY RUNS
DAILY AVERAGE PRODUCTION (WEEKLY) FROM WEEKLY A.P.I. REPORTS
DAILY AVERAGE REFINERY RUNS (MONTHLY) FROM MONTHLY BUREAU OF MINES REPORTS
THOUSANDS OF BARRELS
1930
1931
1932

for the same month in 1931. Admittedly gasoline consumption for 1932 will run considerably less than for 1931 with exception of March and April, but those who follow the situation closely still are in wide disagreement as to the amount of decrease which may be expected during the remainder of 1932. From general observation in the Mid-Continent area it seems that marketers suffered their hardest blow in May, when the decrease amounted to 14 per cent.

An up and down tendency in crude movements from storage continued during the week ending July 19 when estimated net crude movement in Kansas and Oklahoma amounted to an average of 22,000 barrels daily out of storage. During the previous week a daily average of 2300 barrels went to storage as compared with a daily average of 12,000 barrels out for the week ending June 28. In an attempt to beat federal gasoline taxation which became effective June 21, 1932, marketers ordered large stocks to be delivered before that date under assumption that products moved previous to the effective date would be tax free in unlimited amounts. This resulted in overdrafts on refined stocks and increased runs to stills accompanied by increased withdrawals from crude storage during a period of approximately two weeks. This may account to some extent for the erratic crude movement over the past six weeks.

Austin, Texas, July 28.—The Texas Railroad Commission set a hearing on Jack County for August 9, to consider revision of their Rule 37 as it applies to that area.

The application for the hearing was made on behalf of the Brazos River Gas Company, and increased spacing to 660 feet between wells which are producing from below the 2000-foot horizon, has been suggested.

California Situation Still Has Some Rough Spots

PRICES of crude and refined products are still holding their own in California and it is now indicated that the prices will hold, although there are several rough spots yet to be ironed out. J. R. Pemberton, the state's new oil umpire, soon after taking office, addressed a meeting of Long Beach operators, several of whom have been ignoring proration figures set for them. It was the sense of a great majority of those present that new production figures should be observed to the letter, if the new and higher crude prices are to be continued. A vote of the meeting favored reading a list of those who had been refusing to "play ball." The list was read. In a day or so, the Long Beach situation showed marked improvement.

But while Long Beach was "getting right," some of the producers at Huntington Beach got out of line, until total production for that field July 23, showed an overage of nearly 6000 barrels.

The gasoline market is holding up, with a few price cutters showing up, but the price cutters are offering their product at one to one and a half cents under the regular price for third grade gasoline. Until service stations in great numbers offer gasoline at two cents or more under the third grade price held to by the majors, no real trouble is expected.

There is discussion of the increase in California gallonage during June, using state tax figures for comparison. June reports indicated a total state gallonage of 152,103,277 gallons against 113,958,450 gallons in May, and 135,171,072 gallons in June, 1931. This is explained by those close to the market by pointing to the fact that refiners filled the storage of the marketing companies with gasoline just ahead of the federal one cent tax.

It is rumored that federal authorities are asking why the federal tax was not paid on the gasoline thus handled before effective date of the tax, while the tax was added to retail price on the day the tax became effective. Standard Oil Company of California showed an increase of about 2,600,000 gallons over May, while Shell Oil Company increase was almost 9,000,000 gallons. Union Oil Company increase was close to 3,000,000, while Associated Oil Company showed an increase of about 5,000,000 gallons. Richfield Oil Company was up slightly more than 3,000,000 and General Petroleum Corporation increase was about the same. The Texas Company increase was less than a million gallons.

Stocks of refinable crude and gasoline were drawn upon in June, although heavy crude and fuel oils increased.

Summary Review of Field Results

State—	Completions	Oil Wells	Gas Wells	Failures	Initial Prod.
Arkansas	0	0	0	0	0
California	3	2	0	1	6,002
Illinois	0	0	0	0	0
Indiana	12	4	1	7	95
Kansas	20	14	0	6	14,734
Kentucky	13	6	0	7	180
Louisiana	13	4	0	9	2,795
Michigan	9	7	0	2	1,765
Mississippi	1	0	1	0	0
New Mexico	0	0	0	0	0
New York	3	3	0	0	11
Ohio	6	3	1	2	36
Oklahoma	24	16	2	6	8,845
Pennsylvania	23	16	2	5	65
Texas	179	160	1	18	1,200,246
W. Virginia	3	0	2	1	0
Miscellaneous	0	0	0	0	0
Total	309	235	10	64	1,226,774

Comparison of Permits Granted For New Wells

State	For week ending July 29	Total this month	Total this year	date last year	1931 year total
Arkansas	3	4	13	23	34
California	4	13	178	235	342
Louisiana	8	38	285	194	309
Kansas	8	64	371	275	475
Oklahoma	25	86	645	547	842
Texas	218	*865	*5319	3379	6961
Total	266	*1070	*6811	4655	8963

*Revised.

Crude Runs to Stills, Motor Fuel Stocks, Gas and Fuel Oil Stocks and Cracked Gasoline Production, as compiled by A. P. I. for Week Ended July 23, 1932

(Figures in barrels of 42 gallons)

DISTRICT	Daily Refining Capacity of Plants			Crude Runs to Stills		MOTOR FUEL STOCKS					Gas and Fuel Oil Stocks	Daily Charging Capacity of Cracking Units			Cracked Production Daily Average
	Potential Rate	Reporting Total	Reporting %	Daily Average	% Operated	(a) At Refineries	(b) Bulk Terminals	(b) In Transit	(c) Other M.F. Stocks	Total Motor Fuel		Potential Rate	Reporting Total	Reporting %	
East Coast	633,700	633,700	100.0	457,700	72.7	6,345,000	11,284,000	1,754,000	400,000	19,783,000	7,677,000	261,300	236,300	94.1	101,400
Appalachian	149,600	137,400	91.8	93,900	68.3	1,483,000	506,000	42,000	319,000	2,350,000	1,121,000	56,300	54,100	96.1	23,700
Ind., Ill., Ky.	436,300	431,500	98.9	296,000	68.6	5,497,000	2,452,000	.....	241,000	8,190,000	4,393,000	330,400	315,400	95.5	91,100
Okla., Kans., Mo.	485,700	435,200	89.6	231,700	53.2	3,488,000	847,000	.....	1,025,000	5,360,000	3,467,000	237,800	219,500	92.3	47,700
Inland Texas	305,700	233,900	76.5	103,000	44.0	1,266,000	42,000	.....	351,000	1,659,000	2,455,000	98,400	88,800	90.2	22,700
Texas Gulf	532,500	531,500	99.8	403,400	75.9	4,803,000	122,000	.....	335,000	5,260,000	8,302,000	352,400	347,400	98.6	86,300
Louisiana Gulf	147,500	147,500	100.0	98,600	66.8	1,662,000	270,000	.....	32,000	1,964,000	4,711,000	77,000	77,000	100.0	22,200
North La.,—Ark.	85,600	83,000	97.0	44,600	53.7	134,000	47,000	.....	60,000	241,000	684,000	35,400	35,400	100.0	8,700
Rocky Mountain	160,900	143,800	89.4	42,700	29.7	1,841,000	.....	.....	22,000	1,863,000	639,000	99,900	98,400	98.5	11,900
California	914,500	884,100	96.7	491,800	55.6	12,875,000	.....	.....	2,910,000	15,785,000	98,761,000	190,800	190,800	100.0	49,400
TOTALS WEEK:— July 23, 1932	3,852,000	3,661,600	95.1	2,263,400	61.8	39,394,000	15,570,000	1,796,000	5,695,000	62,455,000	132,210,000	1,739,700	1,663,100	95.6	465,100
July 16, 1932	3,852,000	3,661,600	95.1	2,288,000	62.5	39,513,000	15,558,000	1,691,000	5,790,000	62,552,000	132,635,000	1,739,700	1,663,100	95.6	456,100

Below is set out an estimate of total motor fuel stocks on U. S. Bureau of Mines basis for week of July 23, 1932 compared with certain July 1931 Bureau figures.

A. P. I. Estimate B. of M. basis Week July 23, 1932 (d)	40,174,000	18,041,000	5,695,000	63,910,000
U. S. B. of M. Motor Fuel Stocks July 1, 1932	41,198,000	14,139,000	4,828,000	60,165,000
U. S. B. of M. Motor Fuel Stocks July 31, 1932	37,151,000	14,494,000	4,620,000	56,265,000

(a) Stocks at refineries, except in California district, which includes stocks of finished gasoline and engine distillate at refineries, at water terminals and at sales distributing stations and any amounts in transit thereto.
(b) By districts, East of California only. In California, bulk terminal and in transit stocks are included under "At Refineries" heading. See note (a)
(c) Estimated. Includes motor fuel in pipe lines and unblended natural gasoline at refineries and plants, also blended M.F. at plants.
(d) Estimated to permit comparison with A. P. I. Economics Report which is on Bureau of Mines basis.

Danciger Leases Cranfill-Reynolds East Texas Line

Longview, Texas.—The Gregg County crude gathering system, aggregating about 23 miles of four-, six- and eight-inch lines, owned by Cranfill-Reynolds Company, Houston, has been leased by the Longview Gathering System, Inc. (Danciger interests) to be used in delivering East Texas crude to the Petroleum Refractionating Corporation No. 2's refinery, located between Longview and Kilgore. A tank farm consisting of five 55's is also reported to be included in this lease.

California Fluctuates Below Production Allotment

Los Angeles.—Daily production of crude oil in California July 18 to 23, inclusive, ranged under the official allotment of 476,600 barrels, but several fields showed excesses, with other fields showing shortages, bringing state total of state under its allotment.

But when Standard Oil Company of California announced the average price increase of 25 cents, it was stated the new price would hold only so long as daily production was held to or under allotment figure, but at the same time stated the condition could not be met by overproduction in some fields being made up by under production in other fields. Such a condition over a period of 10 days may mean a reduction in the price, and if the price is reduced for this reason, there is a chance the new lower price will be less than the former price.

Here is the situation for a six-day period, using figures from the umpire's office:

Date	State Production	Excess	Shortage
July 18	460,476	7,561	23,285
" 19	468,405	12,077	19,872
" 20	463,678	11,393	23,915
" 21	465,417	10,724	21,507
" 22	464,662	9,284	20,822
" 23	471,921	12,324	16,603

Under production at Ventura Avenue ranges from 10,000 to 12,000 barrels, daily. Several other fields show shortages from a few barrels to 3000 barrels.

Twentieth East Texas Refinery Operating

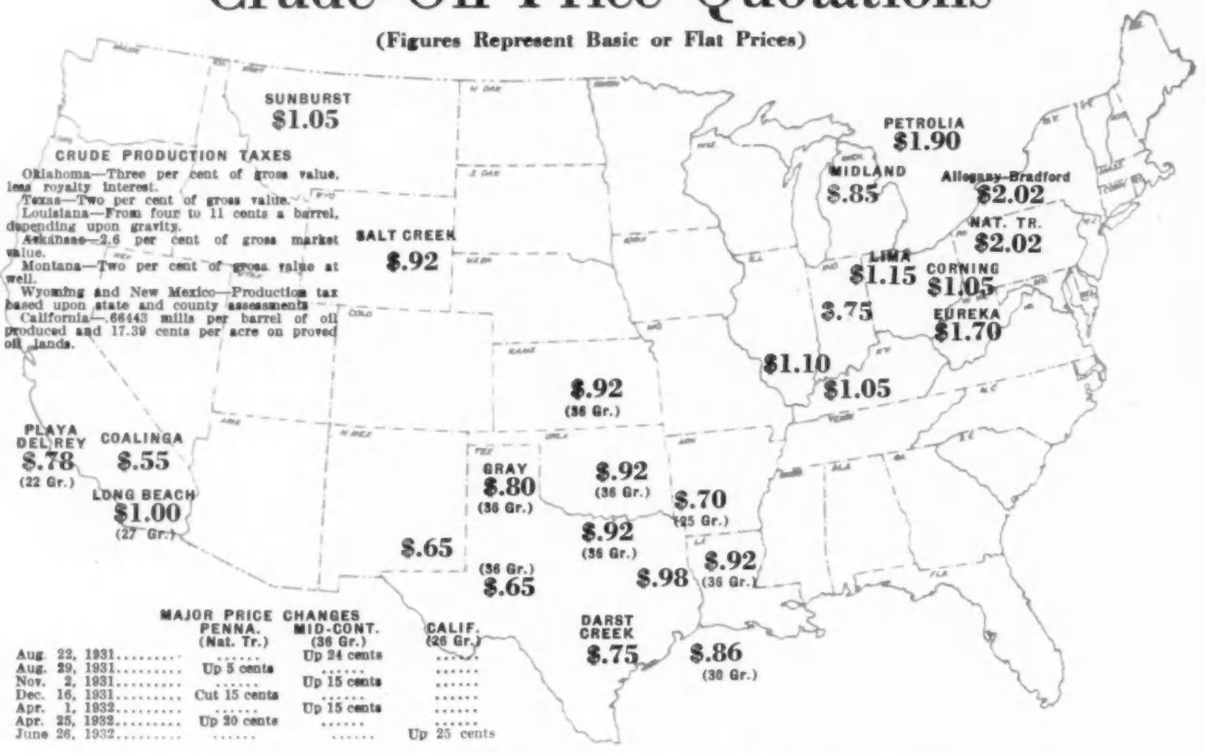
Tyler, Texas.—Completion of the H. & M. Refining Company's 500-barrel daily capacity crude skimming plant in the Gladewater section of the East Texas oil field is the twentieth plant that has been erected within and near the field within the past 18 months. These plants are refining about 15,000 barrels of crude daily, or about one-fifth of their combined capacity.

Nitro Explosion at Electra Kills Two Brothers

Electra, Texas.—Explosion of a nitro-glycerin and dynamite storage plant of the U. S. Torpedo Company located about three miles east of Electra on July 27 cost the lives of Pat and Lewis Kent, brothers, aged 22 and 24 years, respectively. The force of the explosion virtually destroyed all traces of the bodies of the two victims, who were very active in civic and fraternal circles at Electra.

Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)



MAJOR PRICE CHANGES

	PENNA. (Nat. Tr.)	MID-CONT. (36 Gr.)	CALIF. (26 Gr.)
Aug. 22, 1931.....	.....	Up 24 cents	.....
Aug. 29, 1931.....	Up 5 cents	.....	.....
Nov. 2, 1931.....	.....	Up 15 cents	.....
Dec. 16, 1931.....	Cut 15 cents	.....	.....
Apr. 1, 1932.....	.....	Up 15 cents	.....
Apr. 25, 1932.....	Up 20 cents	.....	.....
June 26, 1932.....	.....	.....	Up 25 cents

Official Postings and Differentials *(Revised to July 29, 1932)*

CALIFORNIA: (Effective June 26, 1932).

Signal Hill, Seal Beach, Alamitos Heights, Huntington Beach, Olinda-Brea Canon, Torrance, and Richfield: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 69 cents; 21 gravity 74 cents; 22 gravity 79 cents; 23 gravity 84 cents; 24 gravity 89 cents; 25-25.9 gravity 93 cents, top posting for Torrance and Richfield; 26-26.9 gravity 97 cents, top price for Seal Beach, Alamitos Heights and Huntington Beach; 27-27.9 gravity $1.00; 28-28.9 gravity $1.03, the top price for Olinda-Brea Canon; 29-29.9 gravity $1.06; and 30-30.9 gravity $1.09, the Signal Hill top posting.

Inglewood: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 71 cents; 21 gravity 77 cents; 22 gravity 82 cents; 23 gravity 87 cents; 24-24.9 gravity 92 cents, the top price.

Playa Del Rey: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 69 cents; 21 gravity 74 cents; 22 gravity 78 cents; 23 gravity 82 cents; 24 gravity 86 cents; 25 gravity 91 cents; 26-26.9 gravity 96 cents, the top price. Field gathering charges of 5 cents a barrel.

Athens, Rosecrans and Dominguez: 24-24.9 gravity 89 cents 25-25.9 gravity 93 cents; 26 gravity 97 cents; and 27-27.9 gravity $1.00 with three cents additional for each degree gravity upward, ending at 32-32.9 gravity $1.15.

Elwood Terrace: 33-33.9 gravity $1.04 and 6 cents more for each additional degree of gravity, ending with 37-37.9 gravity $1.28, all prices f.o.b. ship.

Whittier and LaHabra: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 68 cents; 21 gravity 72 cents; 22 gravity 77 cents; 23 gravity 83 cents; and 24-24.9 gravity 89 cents, the top price.

Montebello: 14 to 20.9 gravity 65 cents; 21-21.9 gravity 67 cents; 22 gravity 70 cents; 23 gravity 73 cents; 24 gravity 76 cents; 25-25.9 gravity 80 cents, the top price.

Coyote Hills: 14 to 20.9 gravity 65 cents; 21-21.9 gravity 66 cents; 22 gravity 70 cents; 23 gravity 76 cents; 24 gravity 81 cents; 25 gravity 86 cents; 26 gravity 90 cents; 27 gravity 94 cents; 28 gravity 98 cents; 29 gravity $1.02; and 30-30.9 gravity, $1.05, the top price.

Santa Fe Springs: 24-24.9 gravity 73 cents; 25 gravity 79 cents; 26 gravity 84 cents; 27 gravity 89 cents; and 28-28.9 gravity 94 cents, with 4-cent differential for each degree of gravity upward to 35-35.9 gravity $1.22.

Newhall, McKittrick and Kern River: 14 to 19.9 gravity 55 cents.

Midway-Sunset, Elk Hills and Buena Vista: 14 to 19.9 gravity 55 cents; 20-20.9 gravity 59 cents; 21 gravity 63 cents; 22 gravity 69 cents; 23 gravity 75 cents; 24 gravity 81 cents; 25-25.9 gravity 87 cents and 5-cent differential for each additional degree gravity ending with 30-30.9 gravity $1.12.

Lost Hills: Same as Midway-Sunset up through 25-25.9 gravity 87 cents, then 26-26.9 gravity 91 cents; 27 gravity 94 cents; 28 gravity 99 cents; 29 gravity $1.02; and ending 30-30.9 gravity $1.05.

Coalinga: 14 to 19.9 gravity 55 cents; 20-20.9 gravity 59 cents; 21 gravity 62 cents; 22 gravity 65 cents; 23 gravity 68 cents; 24 gravity 72 cents; and ending 25-25.9 gravity 75 cents.

Wheeler Ridge: 14 to 19.9 gravity 55 cents; 20-20.9 gravity 57 cents; and 21-21.9 gravity 60 cents, with 3 cents more for each additional degree of gravity, ending 25-25.9 gravity 72 cents.

Below 29 gravity: 76 cents with differential of 2 cents for each degree to 40 gravity and above which is posted at $1.00.

North Texas: (Effective April 1, 1932).

Below 29 gravity, 76 cents, with two-cent differential upward, ending 40 gravity and above, $1.

Texas Panhandle: (Effective April 1, 1932)

Gray County: Below 35 gravity: 76 cents, with differential of 2 cents for each degree to 40 gravity and above which is posted at 88 cents.

Carson and Hutchinson Counties: Below 35 gravity: 66 cents with differential of 2 cents for each degree to 40 gravity and above which is posted at 78 cents.

West Texas: (Effective April 1, 1932).

Crane-Upton, Crockett, Ector, Howard-Glasscock, Pecos and Winkler Counties, Texas, and Lea County, New Mexico: 65 cents a barrel.

Southwest Texas: (Effective April 11, 1932)

Refugio: Heavy 80 cents.

Refugio: Light: (Same as Gulf Coast—see below).

Gulf Coast: (Effective April 1, 1932).

Goose Creek, Hull, Liberty, Orange, Pierce Junction, Mykawa, Moss Bluff, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugarland, West Columbia, Humble and Refugio Light: Below 25 gravity: 80 cents, with differential of 1 cent for each degree to 40 and above which is posted at $1.00.

Mirando: 80 cents; **Salt Flat:** 75 cents; **Darst Creek:** 75 cents; **Pettus:** $1.00; **Markham:** Same as Gulf Coast.

Conroe, Texas: (Effective July 18, 1932).

Two-cent differential applies, beginning 35-35.9 gravity, 90 cents, ending 40 gravity and above, $1.

East Texas: (Effective April 1, 1932)

Flat Price: 98 cents.

North Louisiana and Arkansas: (Effective April 1, 1932).

Caddo, Homer, Haynesville, Bull Bayou, Sabine, Cricton, De-Soto, El Dorado, Cotton Valley, Sarepta, Cartersville: Below 25 gravity 68 cents with differential of 2 cents for each degree beginning with 25 gravity and ending with 40 and above. Top price $1.00 a barrel.

Smackover: 65 cents.

Rocky Mountain States: (Effective June 1, 1932).

Salt Creek: Below 29 gravity 76 cents; 29-29.9 gravity 78 cents with differential of 2 cents each degree to 40 and above. Top price $1.00.

Elk Basin and Grass Creek: $1.10; **Big Muddy:** 98 cents; **Lance Creek,** $1.15; **Rock Creek:** 90 cents; **Sunburst:** $1.05; **Osage:** 98 cents; **Cat Creek:** $1.20; **Pondera:** 90 cents; **Hogback, New Mexico:** 80 cents.

Mid-Western States: (Effective April 11, 1932).

Lima: $1.15; **Indiana:** 75 cents; **Illinois:** $1.10; **Princeton:** $1.10; **Wooster:** $1.25; **Western Kentucky,** $1.05.

Pennsylvania: (Effective April 25, 1932).

Bradford District: $2.02; **National Transit Oil:** $2.02; **Southwest Pennsylvania Pipe Line Oil:** $1.75; **Eureka Pipe Line Oil:** $1.70; **Buckeye Pipe Line Oil:** $1.55; **Corning Crude:** $1.05.

Michigan: (Effective July 13, 1932), **Midland:** 85 cents a barrel. **Muskegon:** 76 cents to $1.00 a barrel.

Canada: (Effective Nov. 3, 1931).

Petrolia: $1.90; **Oil Springs:** $1.97.

Automatic Device Regulates Flow From Prorated Well

ONE of the difficulties of operation in the East Texas oil field arises from the flood waters of the Sabine River, which winds across the area in a southeasterly direction. The southern bank is relatively high while the northern is flat, allowing the waters to spread from one half mile to three miles during flood stage. Since this flood water varies from one to 20 feet deep over the area, the switcher's duties become very difficult. He must travel by foot, horse, and boat to cover his lease. Often two boats are required due to intervening ridges obstructing the passage. Due to these conditions, which exist on over 2000 acres of river bottom leases owned by the Atlantic Oil Producing Company, a flowing device was designed by its engineering department. The purpose of this device was to eliminate as many hazards and difficult trips from well to well as possible.

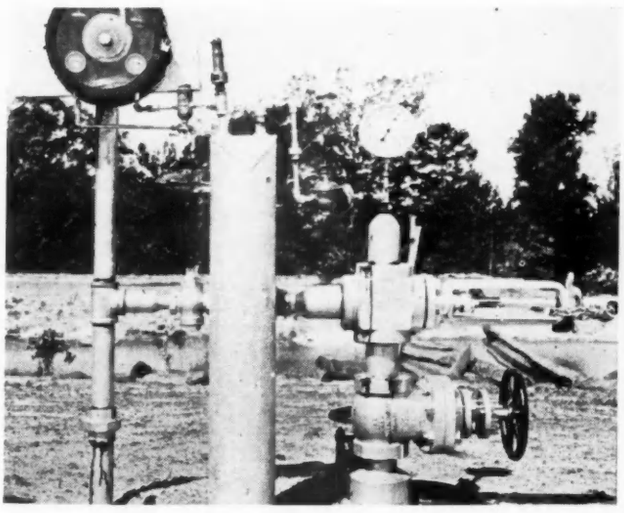
The flowing device is very simple in design and operation. It consists essentially of a diaphragm-motor valve controlled by a time-cycle regulator. Gas pressure is supplied by the well through the necessary regulating valves.

The equipment used in making up this device may be assembled from a variety of sources, since the component parts of the apparatus are of standard manufacture. Although no new equipment is required for the apparatus, the combination and application are new.

Two primary flow circuits are involved. First, the flow of oil from the well through the flow lines to the tanks, and second, the flow of gas from the well head through the regulating mechanism. Oil from the well passes through a choke which regulates the amount of oil passing in a certain time. It then passes through the diaphragm-motor valve, which regulates the time of flow. From this valve it flows through the flow line to the tanks. The choke may be one of the conventional adjustable chokes or a lubricated plug valve has been found satisfactory under present operating conditions.

The diaphragm-motor valve decided on after some experimentation, consists of a reverse acting valve having a top capable of opening the valve against 400 pounds pressure. This valve is held closed normally by the well pressure and a helical spring coiled around the valve stem. Any mishap to the well or regulating equipment will therefore close the valve.

The time-cycle regulator is the same as that used in controlling border stations in city gas supply systems, or in the operation of tire molds in the rubber industry. It consists of a cam driven by an eight-day clock. The cam is cut for any desired time of flow. As the cam rotates, a lever is lifted which opens a pilot valve. Gas is allowed to pass through to the diaphragm-motor valve for its operation. After the pressure is equalized on both sides of the pilot valve, it closes so that only a very small amount of gas is



Front (above) and rear view of hook-up which opens Atlantic Oil Producing Company wells in East Texas and closes them again after the day's allowance has been put into the flow tanks.

consumed. When the cam has rotated past the eccentric portion, the lever drops, allowing the pilot valve to release the pressure on the diaphragm-motor valve, which is closed by the helical spring and well pressure.

Gas is stored in a small capacity tank made of four feet of six-inch pipe. It is supplied with a small pop valve set at 30 pounds. A drain in the bottom of the tank carries any accumulating oil to the flow line.

Pressure regulation is accomplished by a one eighth-inch reducing valve located between the well head and volume tank. Experiment showed the small valve preferable, as closer regulation could be obtained and paraffin trouble was practically eliminated.

Control of the gas volume is obtained by two quarter-inch needle valves. One is located between the regulating valve and the well head and a second on the drain line from the volume tank. These two valves require careful adjustment. Too large an opening results in paraffin forming in the small piping, while too small an opening does not allow sufficient gas to pass, causing the diaphragm-motor valve to open and close as pressure is built up and lowered.

The complete cycle is then as follows:

1. During the "shut-down" period, gas from the well at 300 pounds pressure passes through the needle valve to the pressure regulator, is reduced to 25 pounds pressure and stored in the volume tank. Any oil is drained off automatically into the flow line.

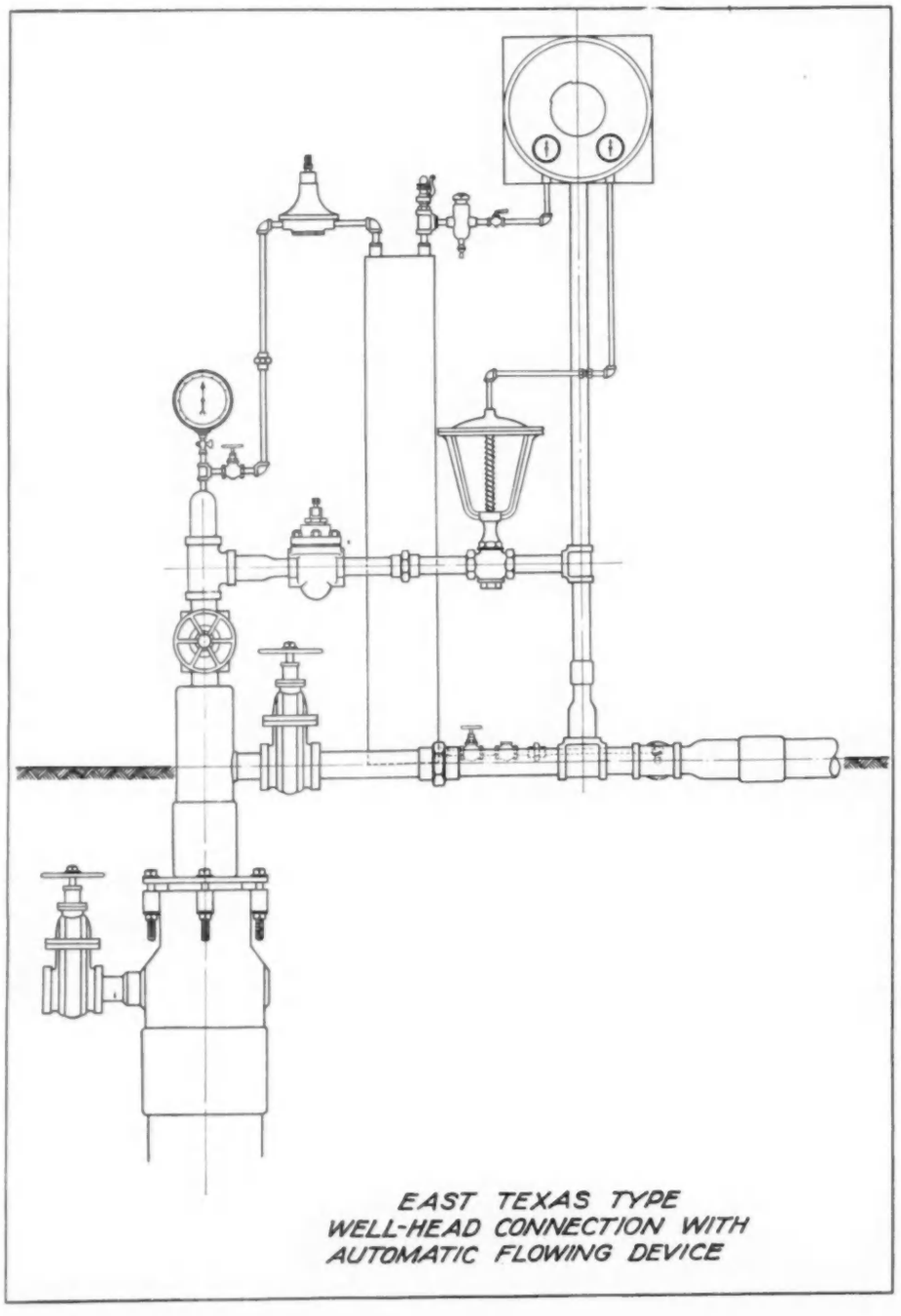
2. The clock rotates the cam to the flowing position, raising the lever which operates the pilot valve.

3. The pilot valve being opened allows gas pressure to build up on the motor valve diaphragm.

4. Sufficient pressure being applied, the diaphragm valve opens, allowing the well to flow at a rate determined by the choke opening.

5. The clock rotates the cam to the shut-off position, allowing the lever to drop, releasing the pilot valve.

6. Gas is bled off the diaphragm through the pilot valve, reducing the pressure and allowing the spring and well pressure to close the valve, shutting in the well.



EAST TEXAS TYPE
WELL-HEAD CONNECTION WITH
AUTOMATIC FLOWING DEVICE

Six months have been spent experimenting with these devices under all the different flowing conditions possible. Tubing sizes from three quarters of an inch to 2½ inches and rates of flow from the maximum through 2½-inch to minimum through three quarters of an inch tubing were tried Naturally some difficulties were encountered but at the present time the device appears sufficiently dependable to warrant its installation on those wells whose location makes them inaccessible during high water periods.

The possibility of running over storage tanks has been considered. Company regulations require the switcher to remain at the battery until all wells have ceased flowing. As further protection, an overflow line has been installed between tanks where these devices are used.

Setting Drill Pipe

As Casing Overcomes "Heaving Shale"

JACK LOGAN
Staff Representative

SUCCESSFULLY setting casing through a large thickness of "heaving" shale, and thereafter resuming drilling in lower and less troublesome formations, Plymouth Oil Company recently performed a job which was of large significance in modern deep well drilling.

In conquering the heaving shale which had been encountered, a successful solution was found to a problem which has baffled and frustrated oil operators, drillers, and petroleum engineers ever since such a formation was first drilled into.

Heaving shale is the name given to a formation encountered along the Texas-Louisiana Gulf Coast, in some of the South American oil fields, in Burmah, and elsewhere. It is a shale highly impregnated with gas, and when drilled into it may not offer any particular resistance to the progress of the drilling bit. But when the bit is removed and the tools are run back in the hole the driller finds all the hole he has made in the heaving shale has ceased to exist. The earth has closed in on the opening left by the bit. The heaving shale has heaved in, and the bottom of the well is back up at the top of that shale.

Furthermore, if the drilling crew is not on its toes while the heaving shale is being drilled, if the walls of the hole are not properly maintained or supported by correct regulation of pressures and weight of drilling mud, there is even danger of having the drill bit and lower portion of the drill pipe caught inextricably in the treacherous shale.

In its more extreme form, as it is known to occur in Burmah, heaving shale not only closes in upon the bore hole, filling all of the hole lying within that formation, but it keeps right on heaving until a sausage of shale has been pushed up through the well and deposited on the earth's surface at the well head.

In the salt dome fields of coastal Texas and Louisiana heaving shale has been a particularly troublesome and costly problem, and leading companies operating in the region have spent hundreds of thousands of dollars combating it, trying to go through the obstinate formation in search of possible underlying oil sands. Some progress was made several years ago in dealing with the shale, principally by treating drilling muds. It became common to make the mud heavier with Baroid or similar preparations; and various chemicals, such as caustic soda, and soaps were used with favorable results, those materials making the mud slick and plastering the walls of the hole while at the same time affording efficient circulation of the mud and satisfactory settling out of cuttings. Some companies had favorable results drilling in shales by coming out of the hole under pressure through use of specially designed auxiliary swivels. Nevertheless, all those measures served merely to make heaving shale seem a problem not quite so hopeless. By no means had the heaving shale been conquered.

Drill With Casing

On the South Texas job which has been mentioned above, however, the problem was attacked from another angle, involving setting of casing in the heaving shale along with the drilling of the hole—all in one operation. After the hole had been made in the treacherous formation it was not necessary to remove the drilling bit and then to run in a string of casing to save the hole. The hole was cased as it was drilled. In fact the hole was drilled with the casing serving as rotary drill pipe, so that there was a string of casing all the way to bottom at every instant during the drilling through the shale.

That unusual procedure was made possible through use of a special collapsible drilling bit, a bit head having been welded to the lower end of the casing. While drilling was in progress the blades of the collapsible bit were in expanded position, but after the heaving shale had been penetrated and regular, solid formations had again been reached, an overshot was run into the well passing down in the casing to the bit head at the bottom of the string. Passing on down over a spearhead-like working part of the collapsible bit assembly, the overshot gripped that spear-

Reed Collapsible Bit used on heaving shale job in Goliad County, Texas. Left shows blades expanded; center bit being withdrawn through casing; right is "bit head" which becomes casing shoe when bit is withdrawn.

Blade carrier with blades in expanded position after being removed from the bit head up through the casing with an overshot on a wire line.

head, and on the upward pull exerted on it when the wire line was drawn back up out of the casing and unlocked the cutting blades of the bit, allowing them to collapse. The blades and the carrier to which they were attached were then pulled up through the casing. The bit head to which the bit had been attached remained of course at the bottom of the well, serving as the bottom of the casing string. That bit head was so constructed, furthermore, that its bottom served as a setting shoe, and cement was pumped down in the well and passed out from the bottom of the casing through that setting-shoe arrangement and back up around the casing to furnish an ordinary cementing job.

The well on which this job of overcoming a large thickness of heaving shale was successfully accomplished was Plymouth Oil Company's Parks 2, located five miles east of the town of Goliad in Goliad County, Texas. Plymouth Oil Company is controlled by the owners of Big Lake Oil Company, discoverers of the Big Lake field.

In drilling Parks 2 it was found that between the depths of 4200 feet and 5000 feet there was present heaving shale aggregating a total thickness of about 600 feet.

That 800-foot section was originally penetrated with an ordinary drilling bit on drill stem. But when the drill stem was removed the shale heaved in and it was impossible to run casing.

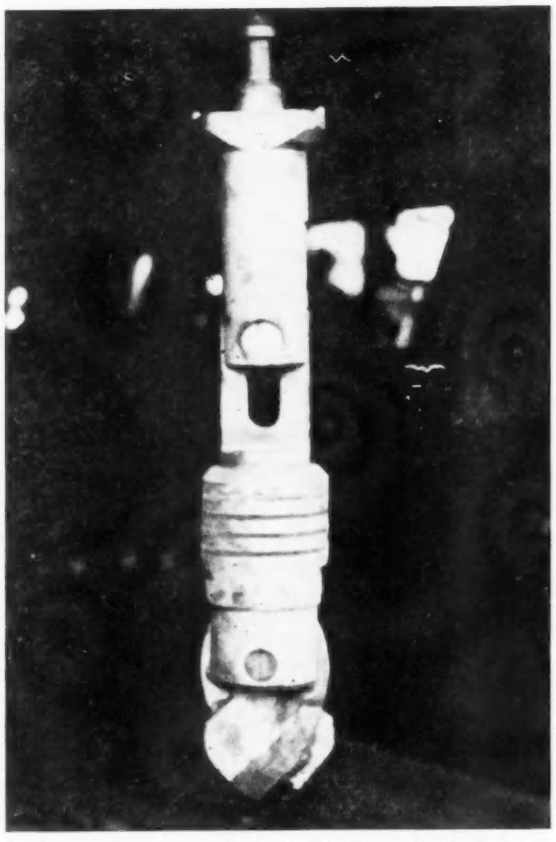
The bit employed is known as the special Reed Wire Line (collapsible blade) bit, being a product of Reed Roller Bit Company. The bit was run in at 4200 feet on a string of 8⅝-inch external upset casing, which was used as drill stem. The bit was screwed on and welded to the casing. The bottom six joints of casing were also screwed and welded together. The collapsible bit, expanded in cutting position, made a bore hole 13¾ inches in diameter.

As drilling progressed with this assembly rotary mud was kept circulating, with the pump registering pressure of 600 pounds. A mud weight of 10 2/5 pounds was maintained. An addition of from 2000 to 10,000 pounds of new mud was made each day, being mixed from El Paso clay and having "Buroni" added to it.

The drilling with the special bit was started at 4200 feet early in July, and after one week and four hours of continuous drilling a casing seat had been reached at 5144 feet, whereupon the blade carrier and blades were removed from the well by means of the Reed overshot on the wire line. The casing was cemented by Halliburton Oil Well Cementing Company.

The Goliad County drilling job was performed by the contracting firm of Loffland Brothers, with Tom Loffland personally supervising.

In connection with the use of this new method of dealing with heaving shale, it has been emphasized that the most effective results are to be expected if the operator will immediately upon starting into a stratum of heaving shale begin using the collapsible drilling bit on the pipe which is to serve both as drill stem and casing, thus eliminating difficulties which may arise from redrilling the well through the treacherous shale, such as trouble caused by cavities formed if the shale is given a chance to heave into the bore hole.



Blade carrier assembly with drilling blades in the collapsed position in which they were removed upward through the drill pipe.

The Truth About

The Magnetometer

WM. M. BARRET

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Consulting Geophysicists, Shreveport, Louisiana

MUCH of the early geophysical work in the United States was conducted by individuals and companies who did not possess the requisite scientific training or research facilities so necessary for its success. As a result of these inopportune ventures, the several geophysical methods and instruments received unjustified criticism.

Because of its comparative cheapness, simplicity and speed of operation, the magnetometer was more generally used than any other geophysical instrument, and was more severely criticized when these ill-organized programs proved unsuccessful.

Modern petroleum geophysics is a most complex science. Its several recognized methods are directly or indirectly related to practically every known basic law of physics. While it is true that the magnetic method offers marked advantages in the acquisition of field data, it is equally certain that related complexities of interpretation render its application more difficult than perhaps any other method, and this fact has contributed in a large measure to the disappointments that have attended the routine use of the magnetometer.

The successful application of the magnetic method demands an intimate knowledge of the fundamentals on which this specialized science is based. This knowledge cannot be acquired hurriedly, but must be gained by intelligent and continued research in the field and laboratory. *When operated properly the magnetometer speaks the truth, and we have ourselves to blame if we do not understand its language.*

DURING the past ten years the science of petroleum geophysics has emerged from an imaginative possibility to a very real tool, which with intelligent care, and under reasonable physical conditions, will yield valuable subsurface data between and beyond known geologic control points.

From the standpoint of instrumental and interpretative advancement, this decade of development has been indeed gratifying to those who have understood the complexities and difficulties confronting this new-born science.

It was to be anticipated that petroleum geophysics would initially receive the transient, popular reception that is accorded every new scientific achievement, and it was not unnatural that many enthusiastic individuals and companies, without rhyme or reason, invested large sums in geophysical equipment. The early confidence of these groups was not predicated on patient investigation or experience, but rather a zealous trust in the supreme magic they had woven about the publicized methods of geophysics.

It is to be remembered that at the height of this stampede of premature investments, applied geophysics was more vague and abstruse than the art of television is today. Certainly, no independent operator or producing company would voluntarily institute a program as foreign to their routine activities as this undeveloped descendent of radio, yet there are numerous instances where such an individual or group, frequently totally devoid of any suggestion of aptitude or training, cheerfully undertook costly geophysical campaigns.

While in other branches of science there has always existed a friendly spirit of cooperation among industrial concerns, private interests and individuals, this spirit has been conspicuously absent among those engaged in geophysical work. Even within the geophysical profession there has prevailed but a limited exchange of practical ideas, though this tendency is less pronounced of late years. This noticeable lack of assistance from allied interests simply means that the individuals or companies that employed geophysical methods were forced to depend almost entirely on their own ingenuities.

Is it not natural that the majority of these early purchasers of geophysical apparatus, who did not possess even a fragmentary scientific background and who were far more interested in overnight results than technical perfection, were forced to the conclusion that their hasty endeavors had proved a costly experiment? Was it not to be expected that the geophysical instruments and methods would receive the caustic criticism that followed these unsystematic ventures?

Popularity and Early Use of Magnetometers

Throughout the hectic geophysical period from 1926 to 1929, when blunders were being committed in the name of Science, there were three well-known types of geophysical instruments available for general distribution: the seismograph, torsion balance and magnetometer. A single complete seismograph arranged for field operation required an expenditure in the neighborhood of $15,000.00, while a torsion balance with necessary auxiliaries could be purchased for about $7,500.00, and a field magnetometer and accessories obtained for the modest sum of $1,500.00.

The prospective purchasers learned quickly that the operating charges of the three types of instruments were in keeping with their initial cost. They likewise realized that besides the important advantage of low first cost, the magnetometer was inherently more portable, and was simpler and more rapid in operation. These essential attributes were not to be overlooked, and from 1926 to 1929 the number of magnetometers in use in this country by the oil industry increased from 60

to nearly 300, representing a total investment of more than a quarter of a million dollars.

The operators for these instruments were drafted from every walk of life, and after superficial instruction were dispatched to the field. The computers, interpreters and technical directors, when used, were selected with the same carefree abandon. In a few brief months the magnetometer became a familiar sight to the inquisitive farmer, and its name a by-word of the oil industry. The roughneck, like the executive, extolled its many virtues, and one and all conversed in hushed whispers concerning the much sought-for magnetic "highs." An operator's proficiency was gauged by the number of magnetic observations he customarily obtained within a day's time, and speed became the order of the day.

Diogenes in his search for an honest man could lay claim to no more prodigious efforts than these enterprising operators. Small tracts were surveyed, as well as entire states and sections. After such sowing, surely a harvest was in sight!

Finally the feeble, and oftentimes faltering oscillations of a magnetometer system were translated into fantastic contours. Magnetic "highs" were born with the sweeps of the contour pen. Some were authentic features, others owed their origin to instrumental uncertainties and abuses, while still others were traceable to disturbed conditions of the earth's magnetism. However, misgivings were not to be tolerated when the map evidenced these elusive "highs" in black and white. They existed, and they smacked of favorable geologic structure!

The denouement of this tragi-comic episode is still fresh in the minds of those engaged in the oil industry, who witnessed the catastrophe that followed the wholesale leasing and drilling of the now despised magnetic "highs." Despair took its place where confidence had so proudly swaggered, gloomy clouds replaced the sunshine of enthusiasm. The far-flung search for magnetic "highs" became a disorderly hunt for an alibi, and because "Caesar can do no wrong," the magnetometer was elected the "goat."

Following the sad finale of these haphazard expenditures, we have had an opportunity to gain a detached and logical conception of the entire affair. It is my frank opinion that 95 per cent of these ventures were doomed to failure before the beginning of operations; not because of inconsistencies or defects related to the magnetic method or the magnetometer, but to the frequent absence of technical proficiency on the part of the various groups directing and conducting the operations. If the seismograph or torsion balance had been subjected to the same inconsistent procedure, it is an assured truth that these instruments would have received the same unjustified criticisms.

It is an oddity of fate that the very factors that most persistently recommended the use of the magnetometer, undoubtedly contributed to its condemnation. Its inherent portability, economy and simplicity of operation appealed to a vast number whose lack of scientific training precluded the possibility of reliable results.

Basic Principle of Magnetic Prospecting and Origin of the "High" Theory

Let us consider for a moment what basis exists for the application of geomagnetics to the problems of petroleum geology, and determine in what manner the much discussed magnetic "high" theory was formulated.

The magnetic method, probably the earliest form of applied geophysics, owes its existence to the fact that the earth is a great magnet, and that its surface distribution of magnetism is somewhat governed by the shape, depth, and magnetic characteristics of the materials composing the lithosphere, or outer rock shell of the earth.

It was some eight years ago that a series of tests was conducted in the United States to determine the feasibility of delineating subsurface geologic features with a vertical intensity magnetometer. For these early studies the investigators selected buried granite ridges and igneous intrusives with the justifiable belief that in these instances the concentrations of magnetizable materials present would magnify the response at the surface. It was found that in general these features were defined with acceptable accuracy by magnetic "highs."

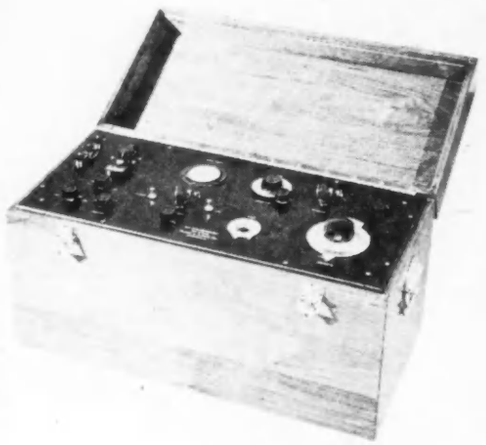

FIGURE 1
Laboratory Susceptimeter for the precise analysis of the magnetic properties of geological samples.

From these results it was concluded that an area of relatively high vertical magnetic intensity would reflect a corresponding area of relatively high subsurface relief. Conversely, it was supposed that a weakening of the vertical field would predict a structural depression.

Difficulties Encountered in Mapping Sedimentary Structure

We have already reviewed the unfortunate sequence of events that followed attempts to employ the elementary "high" theory to interpret the magnetic effects associated with the complex types of structure encountered in routine work. The fallacy of this interpretative procedure was not due to error in the original conclusions, but to the application of these conclusions in correlating the effects caused by an entirely different set of physical conditions.

In order properly to distinguish between the magnetic phenomena related to sedimentary structure and igneous bodies, let us turn our attention again to this latter type of disturbing mass. If we place a bar magnet beneath a vertical intensity magnetometer, with its south pole up, we may observe a positive deflection of the instrument, corresponding to a magnetic "high." Similar conditions obtain when this same magnetic feature is indicated by an igneous plug, for in this instance the plug has become magnetized by induction, under the influence of the earth's magnetism. The numerical value of the "high" will depend largely on the strength of the terrestrial magnetizing field, the physical proportions and depth of the igneous mass, and the magnetic properties of the material composing the plug. Experience has shown that the most important of these several variables is the magnetic character of the plug material. If the mass is highly susceptible to magnetization, it is said to have a high magnetic susceptibility, and if it is but faintly magnetizable, its susceptibility is said to be low. The susceptibility may therefore be considered a multiplier of the magnetic effects observed at the surface.

In our discussion of the disturbance caused by a magnetizable

intrusive, let us recall that we are dealing with a fairly regular geometric body, usually buried at relatively shallow depth, and surrounded by sediments whose susceptibilities are perhaps one ten-thousandth that of the igneous material. The magnetic disturbances due to such masses can frequently be detected at distances of from three to five miles, and the interpretation of the effects is decidedly elementary.

In considering sediments we are not concerned with highly magnetizable materials, as in the case of many igneous intrusives, but with substances whose susceptibilities are generally so very low as to differ but slightly from that of the air we breathe. These low susceptibilities mean first of all that the related magnetic anomalies, or differences that exist between the various stations of a survey, will be quite small. From this it follows that the greatest precision is required in measuring such anomalies; a precision that was virtually impossible to attain with the average magnetometer of several years ago, and that even today, demands the most refined instrumental technique.

With sedimentary structure we are not concerned with an isolated, regular geometric figure, whose susceptibility differs markedly from that of the surrounding media, but with a series of continuous and discontinuous forms, of varying thickness and diversified magnetic properties. Over a series of such beds we cannot expect our magnetic response to be due to the simple case of an isolated magnetic pole, as with the buried intrusive, but must consider the anomalies caused by surface layers of magnetism, which are induced by the terrestrial field at the boundary of any two formations of different susceptibility. We shall not be concerned with a uniform magnetic polarity, but with both positive and negative values, depending principally on the relative susceptibilities of the formations involved.

When considering the anomalies related to sediments we must not overlook the effect of surface topography. If we are to anticipate magnetic reflections from buried anticlines and synclines, then it is only logical to suppose that similar topographic features must likewise be considered. The subject is of two-fold importance, for not only must we take into account the terrain conditions adjacent to the magnetic stations, but also the effect introduced by changes in elevation of the stations. Let it be remembered that the application of the magnetometer to mapping the configuration of buried sediments is predicated on the theory that a systematic change in magnetic intensity will accompany variations in *vertical displacement* of the subsurface formations.

FIGURE 2
Portable Susceptimeter for the routine analysis of the magnetic properties of surface samples.

Is it not a natural corollary that we must anticipate changes in magnetic intensity if the magnetometer moves *vertically* with respect to the hidden beds? To my knowledge the matter of surface topography and station elevation have not been seriously considered or utilized in connection with magnetic work.

Surface conditions are usually of little consequence when dealing with igneous bodies, but are of vital importance in sedimentary studies. By *surface conditions* I refer not only to the factors of terrain and elevation, but to the magnetic character of the exposed materials. In the course of routine surveys I have encountered surficial areas of marine Wilcox that exhibited higher magnetic susceptibilities than the igneous material underlying the Jackson, Mississippi, gas field, and it is a well-known fact that this igneous rock gives rise to a pronounced magnetic "high." Also, in portions of East Texas there exist surficial deposits of considerable extent that are composed of ferruginous sandstones, and it is not uncommon for these deposits to have susceptibilities approaching that of pure magnetite, which is the most magnetic natural material found. Quite obviously, such conditions cause decided magnetic disturbances, due to the close proximity of the materials to the magnetometer. To be reasonably certain that our magnetic anomalies are due to subsurface structure, it is therefore necessary to determine the susceptibility of a representative surface sample at each field station, and to make appropriate corrections when necessary.

It is an interesting fact, and one that introduces decided complications in interpretation, that magnetic lines of force are *refracted,* or bent, at the boundary of certain media, in much the same manner that light waves are. We have all seen a boat oar appear bent when partially submerged in water, due to the difference in the indices of refraction of water and air. In the case of magnetic phenomena, the lines of force are refracted by virtue of the difference in susceptibility of the media. This effect is most apparent when highly magnetizable surface deposits are encountered. At the boundary between these susceptible materials and the air, the magnetic lines of force may be so sharply refracted that a pronounced shielding effect occurs between the magnetometer and the underlying beds.

Summing up, it may be said that the principal influences that cause the abnormal distribution of the anomalous vertical magnetic field at the surface of the earth are: magnitude and direction of the terrestrial field; physical proportions, arrangement, and magnetic properties of the involved surface and subsurface media; and topographic influences. When we consider these several factors, it is not surprising that the elementary theory that a magnetic "high" represents a structural "high," and a magnetic "low" represents a structural "low," will not prove successful except for the simplest geologic forms.

The equations expressing the relation between magnetic quantities and structure are highly complex and we cannot, except in rare instances, hope to interpret magnetic anomalies from a *visual* analysis of a contour map, as has been the prevailing practice in the past. In fact, when this is attempted, one is really trying to mentally deduce and solve a complicated equation from the shape of its plotted graph. This is virtually impossible except for simple, regular geometric figures like the circle, parabola, and such other shapes as we are entirely familiar with from experience.

In the first portion of this paper it has been my intention to picture to the reader the circumstances under which the several geophysical instruments, and particularly the magnetometer,

to nearly 300, representing a total investment of more than a quarter of a million dollars.

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Finally the feeble, and oftentimes faltering oscillations of a magnetometer system were translated into fantastic contours. Magnetic "highs" were born with the sweeps of the contour pen. Some were authentic features, others owed their origin to instrumental uncertainties and abuses, while still others were traceable to disturbed conditions of the earth's magnetism. However, misgivings were not to be tolerated when the map evidenced these elusive "highs" in black and white. They existed, and they smacked of favorable geologic structure!

The denouement of this tragi-comic episode is still fresh in the minds of those engaged in the oil industry, who witnessed the catastrophe that followed the wholesale leasing and drilling of the now despised magnetic "highs." Despair took its place where confidence had so proudly swaggered, gloomy clouds replaced the sunshine of enthusiasm. The far-flung search for magnetic "highs" became a disorderly hunt for an alibi, and because "Caesar can do no wrong," the magnetometer was elected the "goat."

Following the sad finale of these haphazard expenditures, we have had an opportunity to gain a detached and logical conception of the entire affair. It is my frank opinion that 95 per cent of these ventures were doomed to failure before the beginning of operations; not because of inconsistencies or defects related to the magnetic method or the magnetometer, but to the frequent absence of technical proficiency on the part of the various groups directing and conducting the operations. If the seismograph or torsion balance had been subjected to the same inconsistent procedure, it is an assured truth that these instruments would have received the same unjustified criticisms.

It is an oddity of fate that the very factors that most persistently recommended the use of the magnetometer, undoubtedly contributed to its condemnation. Its inherent portability, economy and simplicity of operation appealed to a vast number whose lack of scientific training precluded the possibility of reliable results.

Basic Principle of Magnetic Prospecting and Origin of the "High" Theory

Let us consider for a moment what basis exists for the application of geomagnetics to the problems of petroleum geology, and determine in what manner the much discussed magnetic "high" theory was formulated.

The magnetic method, probably the earliest form of applied geophysics, owes its existence to the fact that the earth is a great magnet, and that its surface distribution of magnetism is somewhat governed by the shape, depth, and magnetic characteristics of the materials composing the lithosphere, or outer rock shell of the earth.

It was some eight years ago that a series of tests was conducted in the United States to determine the feasibility of delineating subsurface geologic features with a vertical intensity magnetometer. For these early studies the investigators selected buried granite ridges and igneous intrusives with the justifiable belief that in these instances the concentrations of magnetizable materials present would magnify the response at the surface. It was found that in general these features were defined with acceptable accuracy by magnetic "highs."

FIGURE 1
Laboratory Susceptimeter for the precise analysis of the magnetic properties of geological samples.

From these results it was concluded that an area of relatively high vertical magnetic intensity would reflect a corresponding area of relatively high subsurface relief. Conversely, it was supposed that a weakening of the vertical field would predict a structural depression.

Difficulties Encountered in Mapping Sedimentary Structure

We have already reviewed the unfortunate sequence of events that followed attempts to employ the elementary "high" theory to interpret the magnetic effects associated with the complex types of structure encountered in routine work. The fallacy of this interpretative procedure was not due to error in the original conclusions, but to the application of these conclusions in correlating the effects caused by an entirely different set of physical conditions.

In order properly to distinguish between the magnetic phenomena related to sedimentary structure and igneous bodies, let us turn our attention again to this latter type of disturbing mass. If we place a bar magnet beneath a vertical intensity magnetometer, with its south pole up, we may observe a positive deflection of the instrument, corresponding to a magnetic "high." Similar conditions obtain when this same magnetic feature is indicated by an igneous plug, for in this instance the plug has become magnetized by induction, under the influence of the earth's magnetism. The numerical value of the "high" will depend largely on the strength of the terrestrial magnetizing field, the physical proportions and depth of the igneous mass, and the magnetic properties of the material composing the plug. Experience has shown that the most important of these several variables is the magnetic character of the plug material. If the mass is highly susceptible to magnetization, it is said to have a high magnetic susceptibility, and if it is but faintly magnetizable, its susceptibility is said to be low. The susceptibility may therefore be considered a multiplier of the magnetic effects observed at the surface.

In our discussion of the disturbance caused by a magnetizable

intrusive, let us recall that we are dealing with a fairly regular geometric body, usually buried at relatively shallow depth, and surrounded by sediments whose susceptibilities are perhaps one ten-thousandth that of the igneous material. The magnetic disturbances due to such masses can frequently be detected at distances of from three to five miles, and the interpretation of the effects is decidedly elementary.

In considering sediments we are not concerned with highly magnetizable materials, as in the case of many igneous intrusives, but with substances whose susceptibilities are generally so very low as to differ but slightly from that of the air we breathe. These low susceptibilities mean first of all that the related magnetic anomalies, or differences that exist between the various stations of a survey, will be quite small. From this it follows that the greatest precision is required in measuring such anomalies; a precision that was virtually impossible to attain with the average magnetometer of several years ago, and that even today, demands the most refined instrumental technique.

With sedimentary structure we are not concerned with an isolated, regular geometric figure, whose susceptibility differs markedly from that of the surrounding media, but with a series of continuous and discontinuous forms, of varying thickness and diversified magnetic properties. Over a series of such beds we cannot expect our magnetic response to be due to the simple case of an isolated magnetic pole, as with the buried intrusive, but must consider the anomalies caused by surface layers of magnetism, which are induced by the terrestrial field at the boundary of any two formations of different susceptibility. We shall not be concerned with a uniform magnetic polarity, but with both positive and negative values, depending principally on the relative susceptibilities of the formations involved.

When considering the anomalies related to sediments we must not overlook the effect of surface topography. If we are to anticipate magnetic reflections from buried anticlines and synclines, then it is only logical to suppose that similar topographic features must likewise be considered. The subject is of two-fold importance, for not only must we take into account the terrain conditions adjacent to the magnetic stations, but also the effect introduced by changes in elevation of the stations. Let it be remembered that the application of the magnetometer to mapping the configuration of buried sediments is predicated on the theory that a systematic change in magnetic intensity will accompany variations in *vertical displacement* of the subsurface formations.

FIGURE 2
Portable Susceptimeter for the routine analysis of the magnetic properties of surface samples.

Is it not a natural corollary that we must anticipate changes in magnetic intensity if the magnetometer moves *vertically* with respect to the hidden beds? To my knowledge the matter of surface topography and station elevation have not been seriously considered or utilized in connection with magnetic work.

Surface conditions are usually of little consequence when dealing with igneous bodies, but are of vital importance in sedimentary studies. By *surface conditions* I refer not only to the factors of terrain and elevation, but to the magnetic character of the exposed materials. In the course of routine surveys I have encountered surficial areas of marine Wilcox that exhibited higher magnetic susceptibilities than the igneous material underlying the Jackson, Mississippi, gas field, and it is a well-known fact that this igneous rock gives rise to a pronounced magnetic "high." Also, in portions of East Texas there exist surficial deposits of considerable extent that are composed of ferruginous sandstones, and it is not uncommon for these deposits to have susceptibilities approaching that of pure magnetite, which is the most magnetic natural material found. Quite obviously, such conditions cause decided magnetic disturbances, due to the close proximity of the materials to the magnetometer. To be reasonably certain that our magnetic anomalies are due to subsurface structure, it is therefore necessary to determine the susceptibility of a representative surface sample at each field station, and to make appropriate corrections when necessary.

It is an interesting fact, and one that introduces decided complications in interpretation, that magnetic lines of force are *refracted,* or bent, at the boundary of certain media, in much the same manner that light waves are. We have all seen a boat oar appear bent when partially submerged in water, due to the difference in the indices of refraction of water and air. In the case of magnetic phenomena, the lines of force are refracted by virtue of the difference in susceptibility of the media. This effect is most apparent when highly magnetizable surface deposits are encountered. At the boundary between these susceptible materials and the air, the magnetic lines of force may be so sharply refracted that a pronounced shielding effect occurs between the magnetometer and the underlying beds.

Summing up, it may be said that the principal influences that cause the abnormal distribution of the anomalous vertical magnetic field at the surface of the earth are: magnitude and direction of the terrestrial field; physical proportions, arrangement, and magnetic properties of the involved surface and subsurface media; and topographic influences. When we consider these several factors, it is not surprising that the elementary theory that a magnetic "high" represents a structural "high," and a magnetic "low" represents a structural "low," will not prove successful except for the simplest geologic forms.

The equations expressing the relation between magnetic quantities and structure are highly complex and we cannot, except in rare instances, hope to interpret magnetic anomalies from a *visual* analysis of a contour map, as has been the prevailing practice in the past. In fact, when this is attempted, one is really trying to mentally deduce and solve a complicated equation from the shape of its plotted graph. This is virtually impossible except for simple, regular geometric figures like the circle, parabola, and such other shapes as we are entirely familiar with from experience.

In the first portion of this paper it has been my intention to picture to the reader the circumstances under which the several geophysical instruments, and particularly the magnetometer,

were so crudely applied during the early explorations in this country. After this, I have endeavored to point out the manner in which the magnetic "high" theory was so logically conceived, and so illogically extended to interpret sedimentary structural conditions. Following this there has been presented a brief outline of the more important variables that enter into the problem of assigning geologic significance to magnetic anomalies.

My treatment of the subject thus far may be considered destructive rather than constructive. While I have indicated certain fallacies that have customarily accompanied magnetic endeavors, and have suggested means of approach to the problem, I have adduced no evidence in support of the magnetometer, nor has its usefulness been demonstrated.

Let us turn back to the summer of 1927, when the magnetometer was enjoying its heyday of popularity. It was at this time that the writer became actively engaged in investigations planned to determine the practical value of the magnetic method when applied to structural studies arising in petroleum geology. The same qualifications that accounted for the ready acceptance of the instrument among the oil fraternity, speed, economy and simplicity, recommended its use to me.

The first six months of field work indicated that while magnetic disturbances were associated with each geologic feature investigated, these disturbances were not of a recognizable character that would permit worthwhile conclusions. An additional six months in the field but served to verify the preliminary deductions, and to corroborate two important facts: (1) the magnetic "high" theory was totally inadequate to explain the effects observed, and (2) there was undoubtedly *some* relation between magnetic anomalies and structure.

FIGURE 3

Experimental model for studying geomagnetic interpretation. This arrangement provides a reliable means for investigating the magnetic anomalies related to geologic structure.

Further reflection suggested the wisdom of separating the problem into two distinct phases, i.e., instrumental technique, and interpretation. Before the subject of interpretation could be considered it was apparent that the field measurements must possess the requisite order of accuracy. It was found from the data collected that to delineate many structural features would require instrumental sensitivity and precision comparable to laboratory methods. Following certain additions and modifications it was learned that the available instruments would perform in a satisfactory manner when operated by experienced technicians.

In attacking the interpretative phase of the problem it was confidently felt that the most important prerequisite for a successful solution would be a thorough knowledge of the magnetic susceptibilities of the materials that would be encountered in practice. Special apparatus was constructed that made possible the general classification of surface and subsurface samples obtained from numerous areas, and the selection of mean values of susceptibilities that might properly be assigned to the various formations. This important work has never been interrupted, and during the past year many additional determinations have been made with the aid of more convenient and precise apparatus. In Figure 1 is illustrated an alternating-current laboratory instrument for the rapid measurement of susceptibilities. This arrangement is termed a *susceptimeter*, and was described before the last meeting of the Society of Petroleum Geophysicists. More recently a portable susceptimeter has been developed for field use that makes possible the selection of more favorable locations for magnetic stations (Figure 2.)

When it was felt that sufficient data had been acquired concerning the required physical constants of the different formations, it was decided to investigate the magnetic disturbances that may be ascribed to surface conditions. The influences exerted by hills, valleys, and other topographic features were then catalogued.

The magnetic phenomena related to subsurface geology were next examined. Two years of such study were devoted to areas that provided stratigraphic data from drilling, with the result that no very convincing relations were established. It was found that important uncertainties were involved in these researches. First, there was the question of the reliability of the information available concerning the geologic features that had been examined; and second, the possibility of unexpected extraneous influences obscuring the results.

To overcome these difficulties, an experimental model was constructed (Figure 3), which provided a laboratory means for simulating and studying the varied problems that arise in applied petroleum geomagnetics. With this arrangement it was possible to investigate the magnetic anomalies caused by miniature geologic forms; to arrive at correction factors applicable to the original field surveys; and to determine definite structural causes required to produce given magnetic effects that had been observed under actual field conditions.

The continued use of this experimental model, amplified by corroborative field and laboratory work, materially assisted in developing a mathematical treatment for the qualitative solution of structure. By *qualitative* solution I mean that the presence of geologic disturbances, such as anticlines, synclines, faults, etc., could be predicted, through the magnitude of the disturbances would be a matter of conjecture.

During the past two years these preliminary interpretative data have been somewhat revised and refined, and it now appears that the magnetometer affords a means for the *quantitative* determination of structure. This conclusion is based on evidence obtained in commercial work conducted throughout the past 15 months by the writer's firm. Out of a total of 21 commercial projects completed in this period, 12 were quantitative surveys, wherein the structure of the areas investigated was delineated by calculated contours based on some well-defined subsurface horizon selected by the client. While three of these surveyed areas are as yet untested, corroborative data have been obtained from 26 wells drilled within the area covered by the nine remaining surveys. The difference between actual and calculated depths were found for each well, and these differences when averaged indicate a mean error of 38 feet; the mean actual depth for the 26 wells being 3530 feet, and the mean per cent error 1.076 per cent.

Manner of Salt Flowage in Salt Domes

By RICHARD A. JONES
Geologist

THE first salt dome oil field of the Texas and Louisiana coast to be developed was the famous Spindletop pool near Beaumont, discovered in 1901. For almost 30 years after the finding of Spindletop, during which long interval of time numerous other domes were discovered, one general conception of a salt dome persisted. The Gulf Coast salt dome was held to be a great cylinder of rock salt, somewhat smaller at the top than at the base, and extending from unknown depths upward into the Tertiary sediments. It was believed that once the salt was encountered all hope of oil production was past, and that the only material below the rotary bit was thousands of feet of salt.

General Accuracy of Original Salt Dome Conception

The generalized correctness of the original idea of salt dome shape has been strikingly illustrated by a test drilled on Sulphur Dome, Calcasieu Parish, Louisiana. This well, Union Sulphur Company's Fee 762, completed in May of the past year, reached a total depth of 9250 feet. It is the deepest hole drilled in the United States outside of California.

This test also drilled deeper into salt than any previous well in the Gulf Coast. Salt was encountered at 5864 feet and the hole was still in salt when abandoned at 9250 feet. The drill penetrated 3386 feet of salt. The great thickness of salt in the Union Sulphur Company's deep test shows that a salt dome is really a huge plug of rock salt extending to great depths below the surface.

Sub-Salt Production at Barbers Hill

In the case of a few domes, it has been known for a long time that thin "shelves" or "overhangs" exist, projecting out from the main salt column, as, for example, in the Anse la Butte field of Southern Louisiana. Such shelves were considered to be only minor eccentricities of salt dome structure and small attention was paid to them. However, in 1930, the Barbers Hill salt dome, in Chambers County, Texas, not far from Houston, presented the extraordinary phenomenon of wells drilling through great thicknesses of salt, entering again the regular succession of Tertiary sands and shales, and finding large oil production below the salt. Some of these "under-the-salt" wells at Barbers Hill are listed in an accompanying tabulation.

Inverted Cone or Mushroom Structure of Barbers Hill

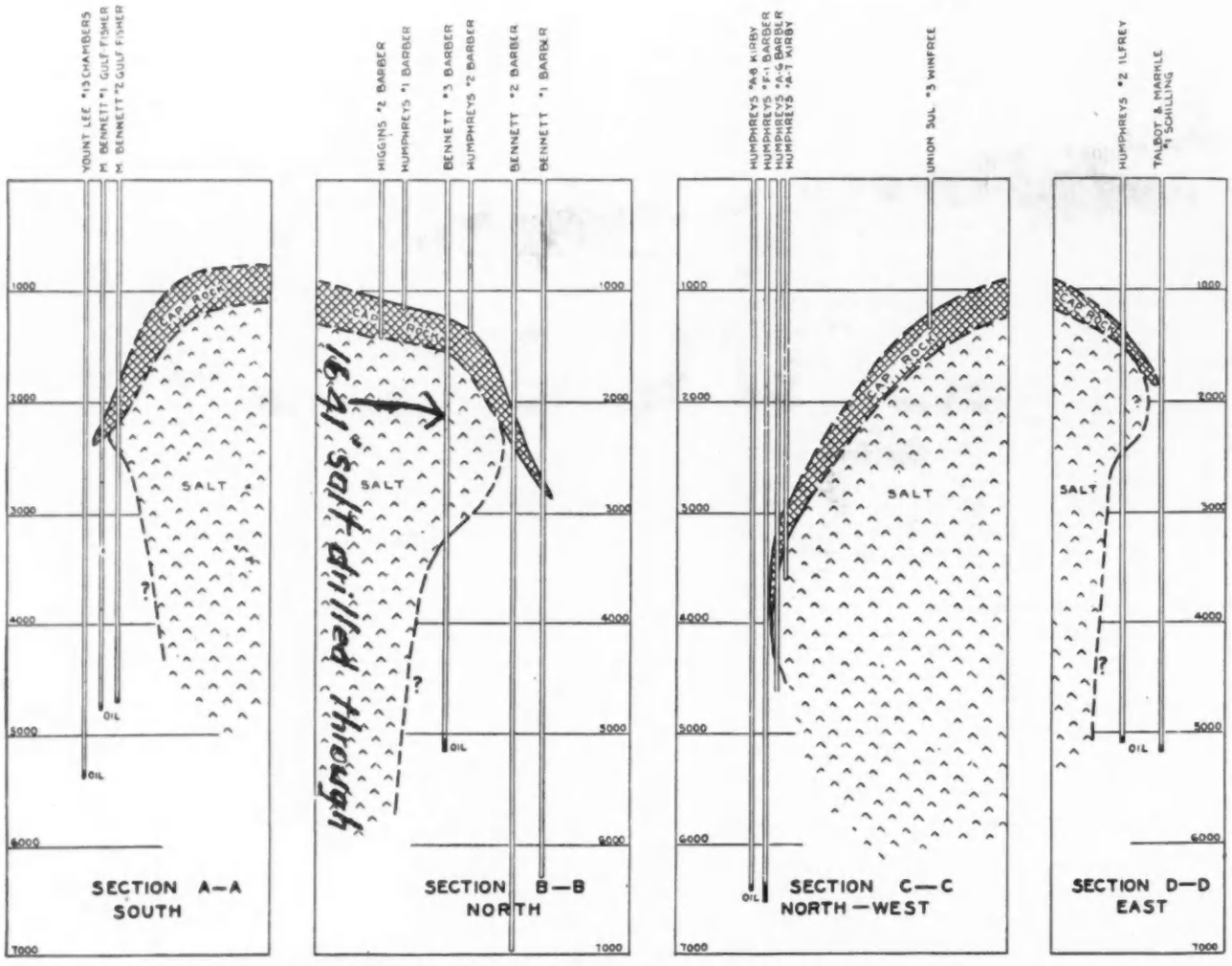
The discovery of oil production beneath salt overhangs at Barbers Hill lead to speculation as to the shape of the salt mass in this locality. The fact that exceptionally large thicknesses of salt protrusions were encountered, for instance, 1641 feet of salt in Mills Bennett Production Company's Barber 3, and 1888 feet of salt in Yount-Lee Oil Company's Chambers County Agricultural Association 17, indicated that the Barbers Hill dome might not be the typical rock salt cylinder, which all salt domes had previously been considered to form. To the middle of February, 1931, a total of 21 wells at Barbers Hill had been drilled through projecting masses of cap rock and salt, and back again into shales, sands and gumbos.

Some Sub-Salt Wells at Barbers Hill Dome, Chambers County, Texas

Well	Cap Rock and Salt Penetrated	Producing Sand	Initial Production
Mills Bennett Production Co.'s Barber 3	344 ft. of cap rock, from 1213 to 1557 ft. 1641 ft. of salt from 1557 ft. to 3198 feet	5005-5147 ft.	1400 bbls.
Humphrey Corp.'s Ilfrey 2	878 ft. of salt, from 1531 to 2409 ft.	5060-87 ft.	1062 bbls.
Humphrey Corp.'s Morgan 1	139 ft. of cap rock from 2174 to 2313 ft. 231 ft. of salt from 2313 to 2544 ft.	6310-6404 ft.	200 bbls.
Yount-Lee Oil Co.'s Chambers County Agri. Assoc. 17	1888 ft. of salt	5054 ft.	180 bbls.

The unusual conditions displayed at Barbers Hill caused a close study of the structure. At the annual convention of the American Association of Petroleum Geologists at San Antonio, Texas, in March, 1931, a paper was read on this subject by Sidney A. Judson and P. C. Murphy of the Humphreys Corporation,—"Overhanging Cap Rock and Salt at Barbers Hill, Chambers County, Texas." The Barbers Hill dome, in the light of sub-salt drilling, is held to be a shallow salt dome with the shape of an inverted cone, at least in the upper part of the salt intrusion. In another mode of description, the dome may be said to have the form of a mushroom, with a bulging top larger than the salt column below it. The formations and producing sands below the salt overhanging are undisturbed, except for a few hundred feet, where the strata are often tilted at steep angles and have suffered mineralization.

The mushroomed top of Barbers Hill dome has large economic significance. It is possible that other domes may also have a similar shape. Should this be the case, it means that various other domes may have production under a salt overhang. Large areas, previously believed condemned because test wells drilled into salt, are again favorable pros-



CROSS SECTIONS OF CAP ROCK AND SALT ON VARIOUS FLANKS OF BARBERS HILL SALT DOME

SCALE VERTICAL & HORIZONTAL

Drawn by Jno Larke

From "Barbers Hill Dome pictured as a cone with point down," by Jack Logan, The OIL WEEKLY, October 17, 1932.

pects open for exploration. The already vast petroleum potentialities of the Gulf Coast are greatly increased by the inverted-cone salt dome shape demonstrated at Barbers Hill.

In addition, the structural conditions found at Barbers Hill have aroused renewed interest in the general subject of salt domes. Especially has there been interest in the question of how the salt can assume the bulging mushroom form exhibited at Barbers Hill. This question is essentially a matter of salt flowage, which will be discussed in paragraphs to follow.

Basic Theory of Salt Dome Formation

Years ago, when the presence of salt domes was first recognized in the Gulf Coast of Texas and Louisiana, many theories were advanced as to their origin. Some geologists held that they had been formed by the crystallization of salt from salt water solutions, the thrust of the crystallizing mineral forcing back the sedimentary rocks. This, and various other ingenious theories have been abandoned.

The basic theory of salt dome origin now adhered to by geologists is called the "sedimentary and structural theory." It is believed that, deeply buried beneath the Tertiary sediments of the Gulf Coast, is a great deposit of salt, similar to the large thicknesses of rock salt so familiar to the industry in the oil fields of West Texas. The exact age of this Gulf Coast salt deposit no one can yet say. Some believe the salt is Permian. Others think that it may be Cretaceous, possibly of Glenrose or Comanche age.

The depth of the salt deposit is likewise unknown. However, the torsion balance indicates that it is at least 15,000 to 20,000 feet beneath the surface. The torsion balance observations attempt to give the depth to the base of a salt dome, which, theoretically, should also be the depth to the original salt deposit. Donald C. Barton of Houston states, under a discussion of the torsion balance method[1]:

"The gravitational system in the salt dome area consists of (1.) the salt plugs . . . .; (2.) a cap of limestone, gypsum, and anhydrite, which lies on the salt . . .; (3.) a 15,000 to 20,000 foot stratigraphic section of sedimentary deposits."

The same geologist again writes[2]:

"The calculations (torsion balance) seem to indicate that

[1]Barton, Donald C., "Review of Geophysical Prospecting for Petroleum, 1929," Bulletin Amer. Assoc. Pet. Geologists, Vol. 14, No. 9, Sept. 1930, page 1113.

[2]Barton, Donald C., "Torsion Balance Survey of Esperson Salt Dome, Liberty County, Texas," Bull. Amer. Assoc. Pet. Geologists, Vol. 14, No. 9, Sept. 1930, page 1129.

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the respective salt cores of the Esperson and South Liberty —Dayton domes must extent to a depth of 15,000, plus or minus, feet."

Structural or tectonic movements of the earth's crust are thought to have compressed this deeply buried Gulf Coast salt deposit, forcing it in various places upward into the overlying rocks in the form of salt domes. The localities where the salt penetrated the upper sediments were weak spots in the crust, either fault cracks and fissures, or places where the pressure of the overlying deposits was lightened by anticlinal arching. The fact that salt can be squeezed upward along lines of earth weakness as a plug-like cylinder or as a mushroom shaped mass, on the whole very symmetrical, shows that the salt must possess some peculiar property. *This property is plasticity or the power of flowing and assuming various shapes.* The question arises,—"How does salt, which is a crystalline mineral, possess this property of plastic flow?"

Salt Glaciers

A recently published volume, "The Structure of Asia," consisting of a collection of geological papers edited by J. W. Gregory of the University of Glasgow, Scotland, is reviewed by Sidney Powers in the September, 1930, Bulletin of the American Association of Petroleum Geologists. In this book are mentioned salt domes accompanied by salt glaciers in islands of the Persian Gulf and on the mainland. One of the most remarkable salt glaciers is that of Kuh-i-Angura, described in the following quotation:

"Rock salt is capable of flowing like ice. It may be pressed upward along lines of weakness and form accumulations.

"The salt domes of Persia give, perhaps, the most perfect exposure and clearest evidence of this behavior of salt. We shall describe . . . . spectacular examples of the flowing of salt and show how even great salt glaciers may be formed.

"Kuh-i-Angura salt plug (see figure) has burst through the highest crest of a long anticline. Erosion has exposed Cretaceous rocks in the core of this fold, and massive Eocene limestones form an elliptical amphitheatre. The salt appears to have been squeezed out of a central vent in the Cretaceous limestone, and, when a great mass of salt had accumulated, it began to flow downhill. It has almost completely overridden and enveloped the Eocene limestone scarp on the southern flank of the fold, with the exception of two peaks which still protrude through the salt mass. The sketch shows clearly how the flow of the salt was diverted by topographical obstacles and how it finally reached the alluvial plain."

Flowage of Salt Similar to Flowage of Glacier Ice

This exceptional exposure in Persia of a salt dome proves the correctness of the structural idea of the origin of the salt domes of the Gulf Coast of Texas and Louisiana. The salt can actually be seen on the surface at the Kuh-i-Angura dome as having been squeezed up through a weak spot in the crust of the earth. In addition, it flows in great masses downhill, forming a salt glacier.

The example of salt dome structure and salt movement at Kuh-i-Angura furnishes the key to the manner in which the salt of salt domes flows. The plasticity and power of movement of salt must be similar to the action of ice in glaciers.

There have been few opportunities to make detailed scientific observations of the flowage of salt, due, obviously, to the fact that most salt dome masses are buried beneath the surface. However, for many decades geologists have studied the method of movement of the ice of glaciers. Thus, if we review the knowledge that has been secured concerning the flowage of ice in glaciers and apply it to salt domes, keeping always in mind the differences in the essential character of salt domes and glaciers, we will obtain a conception of the manner in which salt acquires the power of plastic flow, with consequent formation of salt domes.

Both ice and salt are crystalline substances. The crystal shape of "halite" or rock salt is that of a cube. Snow crystals, from which ice is often formed in cold or mountainous regions, when uncrushed, present beautiful flower-like patterns, but the crystals usually have hexagonal or six-sided symmetry.

Thus, both a glacier and a salt dome is a mass of crystalline rock,—the one composed of ice, the other of rock salt. This crystalline body is the purest and simplest type of crystalline rock known, for it consists of a single mineral of simple composition and extreme purity. Brittle and resistant as both ice and rock salt appear, they are both capable of exhibiting the characteristics of a plastic substance. The movement of an ice field or glacier, in a superficial manner at least, is brought about because the ice moves like a viscous liquid, the motion taking place with extreme slowness. The salt, which has been intruded into the rocks of the earth's crust to form salt domes, moves by reason of a similar plasticity.

There are certain fundamental differences, however, between the movement of glacier ice and the intrusion of salt domes. The principal contrast is that glaciers move downhill *with gravity,* while salt domes are pushed upward *against gravity.* The "sliding" of a glacier downhill is an important element in its movement. Also, salt domes are under much greater pressure than even the lowest part of the ice of glaciers. The salt is under much higher temperatures than glaciers, and is not subject to the characteristic low-temperature melting and freezing of ice.

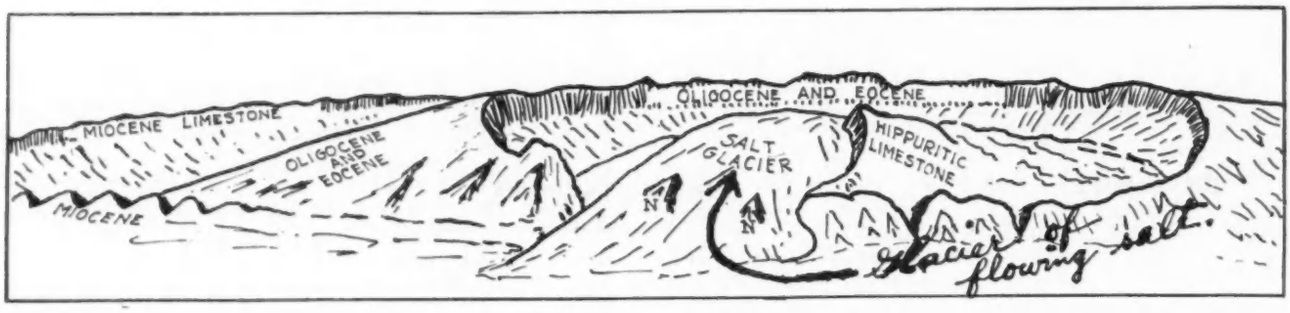
Scientific Character of Ice and Salt Flowage

Glacial movement, as has been mentioned, is extremely slow. The change in position of a glacier is too slow to be seen from day to day. It may only be detected when the lower end of the glacier rides over objects in front of it, or moves out on ground previously unoccupied. The rate of movement of the ice may be established by stakes or other markers set upon its surface. In the Alps of Switzerland, where, for a hundred years or more, glaciers have been carefully studied, the average amount of movement of glaciers is from one or two inches to four feet per day. The average movement of the edge of the great glacial cap of Greenland is very small,—probably less than one foot per week. Considering the extreme slowness of glacier motion, the basic element of the flowage of glacial ice has been stated as follows by Dr. R. D. Salisbury,[3] the greatest authority who ever lived on the problems of ice and glaciers.

" . . . . (Glacial) movement takes place by the minute individual movements of the (ice) grains upon one another. . . . . The amount of rotary motion required of an individual granule is surprisingly small, and the meltings and refreezings incident to shifting pressures and tensions, and to the growth of the granules, seem adequate to meet the requirements. In order to account for a movement of three feet per day in a glacier six miles long, the mean motion of the average granule relative to its neighbor would be, roundly, 1/10,000 of its own diameter, or one diameter in 10,000 days; in other words, *it would change its relations to its neighbors to the extent of its diameter in about 30 years.*

A change of so great slowness under the conditions of granular alteration can scarcely be thought incredible, or even improbable, in spite of the interlocking which the granules may develop. The movement is supposed to be

[3]Chamberlin and Salisbury, "Geology," Vol. 1, page 313 et seq.



Kuh-i-Angura salt dome and salt glacier. It is located on the Persian mainland, north of the east end of Qishm Island at the entrance to the Persian Gulf. Two nunataks (N) of limestone project through the salt glacier.
From "The Structure of Asia", by J. W. Gregory, reviewed by Sidney Powers, Bulletin Amer. Assoc. Petroleum Geologists, September, 1930.

permitted chiefly by the temporary passage of minute portions of the granules into the fluid form at the points of greatest compression, the transfer of the moisture to adjoining points, and its resolidification. The points of greatest compression are obviously just those whose yielding most promotes motion, and a successive yielding of the points that come in succession to oppose motion most (and thus to receive the greatest stresses) permits continuous motion. It is merely necessary to assume that the gravity of the accumulated mass is sufficient to produce the minute temporary liquefaction at the points of greatest stress, the result being accomplished not so much by the lowering of the melting point as by the development of heat by pressure.

This conception of Glacial Flowage involves only the momentary liquefaction of minute portions of the mass, while the ice as a whole remains rigid, as its crystalline nature requires. Instead of assigning a slow, viscous fluidity like that of asphalt to the whole mass, which seems inconsistent with its crystalline character, it assigns a free fluidity to a succession of particles that form only a minute fraction of the whole at any instant. . . . . This idea is consistent with the retention of the granular condition of the ice, with the heterogenous (in the main) orientation of the crystals, with the rigidity and brittleness of the ice, and with its strictly crystalline character, a character which a viscous liquid does not possess however much its high viscosity may make it resemble a rigid body."

The foregoing theory of the movement of glacial ice seems to the writer a theory that can well be applied to the movement of salt in the formation of salt domes. The minute change of position of the salt crystals with relation to one another, caused by a temporary softening or liquefaction due to heat and pressure, would give the entire salt body the necessary plasticity to enable it to move, especially when we consider the immense length of geological time. In addition, this plasticity would be accompanied by the rigidity necessary to enable the salt body to force its way under pressure from below through the great overburden of compact rocks.

As in the case of glaciers, the movement of the salt of salt domes is not comparable to the flow of hot, liquid lava. The movement and development of both glaciers and salt domes is due to a unique combination and co-ordination of plasticity and rigidity. This phenomenon is one of the most remarkable features encountered in geology,—this strange faculty of a crystalline, mineral mass of ice or salt actually slowly flowing like a body of viscous liquid, but at the same time retaining its hardness and rigidity. The flowing glacier picks up rocks and, while the glacier flows onward, holds these rocks so fast in its rigid crystalline base, that it cuts deep grooves in the hard limestone or granite, over which the glacier may flow. The flowing salt dome, under the influence of heat and pressure, ascends through the crust of the earth, assuming plastic shapes in its upward course, yet at the same time remains so rigid that it has the power to push back the overlying and surrounding rocks, and shatter them into the faults which surround the salt plug.

The Fable of the Man Who Bought a Hoist

A CERTAIN man contracted to raise the steel work for a great bridge . . . scheduling the work with railroad precision. ¶ No power line was near, so a 100 hp. gasoline hoist was needed. But when he went to buy, lo, there were 100 hp. hoists with engines both big and little, at prices high, and low. His bid was figured close, so he bought accordingly. ¶ The hoist did its best, but the engine was overworked . . . he didn't make his schedule. ¶ He could have bought a dozen hoists, conservatively rated, with the penalty money that he lost.

WAUKESHA ENGINES

Are conservatively rated to prevent costly shutdowns. *Write* for Bulletin 827. *Waukesha Motor Co., Waukesha, Wisconsin.*

REAL HORSE POWER NOT PAPER HORSE POWER

CALIFORNIA FIELDS

California Curtails Below Quota; Deep Inglewood Drilling May Be Forced; Deep Well Behavior Better.

BRAD MILLS, *Staff Representative, Los Angeles, California*

Ventura "Deepest Well" Is Better Producer Cleaned

Los Angeles.—Associated Oil Company's Lloyd 83, at Ventura Avenue, deepest commercial producer in the world, was placed back on production July 26, and the first five hour flow indicated a daily production of about 7000 barrels of 26.5 gravity oil. The well, which was first completed with a bottom depth of 9710 feet (corrected depth), was worked over after being killed July 16. So much weighting material used in the drilling mud prior to completion, apparently had "mudded" off much of the 1089 feet of formation, and when it was found that it had to be pinched back to build up a pressure, it was decided to kill and work over.

The hole was washed carefully, thinning the mud until the pressure built up to a dangerous point, and then again weighting the mud. The hole was thought to be in much better condition July 24, when the Christmas tree was put in place. When the well was first placed on production, the flow was less than 5000 barrels daily, and since it had shown so much pressure during the drilling period, it was felt that it should show for nearer 10,000 barrels.

The action of this well indicates that production is very probably at Ventura Avenue field at and below 10,000 feet, and no one knows how much deeper. Lloyd 83 takes in a deeper zone than ever before attempted in the field, and in time to come, owners of the favorably located property can drill to 10,000 feet or better for production when it is needed.

Go Deeper in Santa Maria Test If Pipe Is Recovered

Los Angeles.—Drillers are making satisfactory progress recovering the 2½-inch drill pipe from Western Gulf Oil Company's Bradley 1, wildcat near Santa Maria, which is the deepest hole (10,294 feet) ever drilled in the United States and only topped by the well drilled in Mexico last year. It is now indicated that every effort will be made to recover all of the drill pipe, or enough of it to permit side tracking, and drill deeper.

This record hole was open from 5990 feet, where 5¾-inch had been cemented, and the pipe froze about 20 feet off bottom and then parted at 1350 feet. The rock bit was drilling in hard brown shale when the accident happened. It had been expected that the Temblor formation would be found around 6000 to 7000 feet when the casing was cemented and they now would like very much to continue drilling until the Temblor is reached. This is the formation that is producing at Kettleman Hills.

The present hole is about five inches and coring has been practiced frequently, with fair recoveries. The well had been making about 20 feet a day as an average when the drill froze.

Kettleman Hills Has Quiet Period; 16 Wells Drilling

Coalinga, Calif.—No completions were reported during past week at Kettleman Hills. The field reports 16 wells actively drilling and five rigs. Thirteen producers are standing shut in with 25 wells on production. The gravity of the oil now being produced range from 35 to a high of 46, but the average of the field is 38 to 40.

Bakersfield, Calif.—Two new locations were announced the past week for Fruitvale and one new well was spudded. Thirteen wells are now drilling in the field.

Lease Owner May Force Deeper Production

Los Angeles.—Considerable interest was aroused last week in the Baldwin Hills (Inglewood) field, when it was learned that the owner of the Rubel lease, being operated by the Pacific Western Oil Company, demanded that Rubel 16 be drilled into the known deeper zone. Due to overproduction, land owners and oil companies for years had refrained from drilling and producing this deeper zone, until conditions warrant such action.

Some years ago Shell Oil Company drilled into this deeper zone, and found that it furnished 30 gravity oil against 22 gravity oil for the upper pay. Associated Oil Company then drilled into the richer pay, but an agreement then reached called for no more drilling deeper, and the company shut in its producer. Recently Shell Oil Company agreed to plug its deep producer back to 2760 feet, and the well is now a producer of lower gravity oil.

Pacific Western Oil Company cemented 13⅜-inch at 1183 feet in Rubel 16, and July 23, cemented a string of nine-inch at 2540 feet. The well is standing cemented and it has not been decided just what will be the outcome. It is the hope of the companies operating at Baldwin Hills that the land owner will agree that Rubel 16 be not drilled into the deeper pay, at the present at least, as such action will call for other companies to do the same.

California June Output Below Proration Quota

Los Angeles. — California oil producers curtailed 54.24 per cent of their potential production during June, according to the regular monthly review of curtailment performance issued by the State Oil Umpire's office.

Daily average production was gauged at 466,650 barrels daily for the period, 12,657 barrels daily under the quota for the state under the curtailment program.

Potential production in all fields was placed at 1,019,812 barrels daily, 553,162 barrels greater than the state's actual production.

San Joaquin Valley operators made the best curtailment showing, curtailing 66.85 per cent of their potential output. Potential production for Valley fields was placed at 502,575 barrels daily while actual production was gauged at 166,617 barrels daily average, curtailment standing at 335,958 barrels daily.

Santa Barbara and Ventura County fields curtailed 59.34 per cent of their potential output, production in this district maintaining a daily average of 50,397 barrels daily, 73,549 barrels daily under the potential output of 123,946 barrels.

Fields in the Los Angeles Basin curtailed but 36.53 per cent of their potential output over the period, daily average production standing at 249,636 barrels, as against a potential of 393,291 barrels, which placed the actual curtailment at 143,655 barrels daily average.

California Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
KETTLEMAN HILLS—		
Kettleman North Dome Assn., No. 61-2P	2835	8328
Standard Oil Co., No. 278-335	3167	8170

KERN COUNTY—
Rio Grande Oil Co., Utting 1, 7-27-19 . . . . . * 3181

New Operations

ORANGE COUNTY—Mineral Exploration Co., No. 1, 8-8-7.

SAN LUIS OBISPO COUNTY—Shell Oil Co., No. 1 Mahoney, 4-25-12.

BUTTONWILLOW GAS—Milham Exploration Co., No. 21-17 S. P., 17-28-23.

FRUITVALE—Western Gulf Oil Co., No. 3 Price & Stewart, 22-29-27.

NORTHERN CALIFORNIA

Wildcat Drilling Report

(Wells shut down not included)

KERN COUNTY

BLACKWELL'S CORNER — F. Fowler's Lincoln 1, 15-26-19, dr gray sand 3015 ft.

BUTTONWILLOW — Milham Exploration Co.'s S. P. L. 14-9, tested wet at 2670 ft, to recement; S. P. L., 21-17, 17-28-23, dr blue shale, 2400 ft. Wilshire Oil Co.'s Nordon 1A, 7-29-24, swabbing water, no gas 6990 ft.

DEVIL'S DEN—A. S. Holloway's Lincoln 1, 11-25-18, lcn. Pyramid Hills Oil Co.'s No. 1, 24-25-18, setting 8⅝ inch at 1480 ft. Tom Hannah's No. 1, dr hard sand 3460 ft.

McKITTRICK—H. T. Purman's No. 1, 22-29-21, suspended, 4562 ft. Welport Oil Co.'s No. 2, 19-28-21, dr shale 360 ft.

SANTA BARBARA COUNTY

COAL OIL POINT—Bolsa Chica Oil Corp.'s No. 191-1, redrilling 1750 ft, td 5510 ft. Equity Oil & Gas Co.'s 159-1, dr shale 3250 ft.

LOS ALAMOS—Barnsdall's Careaga, 31-8-33, plugged to 4250 feet, preparing to test.

SANTA MARIA—Western Gulf's Bradley 1, 5-9-33, fsh for dr pipe, td 10,294 ft, deepest active well in world.

SANTA ROSA ISLAND—Standard Oil Co.'s No. 1, dr hard shale 2075 ft.

VENTURA COUNTY

CONEJO—American Oil Co.'s Powell 1, 35-2-20, dr rock 2040 ft.

HOPPER CANYON—H. A. Bardeen's Lankershim 2-B, 13-4-19, fishing, 2757 ft.

RINCON—Woodrow Pet. Corp.'s Woodrow 1, 4-3-24, dr shale 3300 ft. J. Warren Miller's Valenzuela 1, 23-3-24, rig.

SANTA PAULA—E. M. Lesperance's Boosey 1, 31-4-20, rig.

SESPE—Harmon and Deal's No. 1, 35-5-19, rigging rotary. H. A. Ivar's Star 1-7, 1-4-20, dr hard sand 250 ft. Merchants Pet. Co.'s Cochran 6, 1-4-20, grading lcn.

SIMI—Anderson and Anderson's Marr 11, 36-3-17, dr sandy shale 1300 ft, streaks oil sand.

SULPHUR MOUNTAIN—Wilshire Oil Co.'s Thompson 1, 20-4-21, bldg rig.

TIMBER CANYON—Superior's West 3, 13-4-21, dr 1300 ft.

MISCELLANEOUS

KINGS COUNTY—Kettleman Reef Ridge Oil Co.'s No. 1, 10-23-16, standing cmt 1150 ft. Mid-California Oil Co.'s No. 1, 11-23-16, lcn. Knudsen and Schmidt's Avenal 1, fsh for tubing 5640 ft. Eagle Oil & Gas Co.'s No. 2, 15-23-20, dr shale 1400 ft. Triune Gas, Oil & Land Co.'s No. 1, 5-23-20i, cemented 10¾ inch 300 ft.

SAN LUIS OBISPO COUNTY—Emerick Oil Co.'s Holland 1, 22-32-22, dr 1925 ft. Kent & McDonald's No. 1, 3-32-22, re-drilling 2700 ft. Panorama Oil Co.'s Panorama 1, 7-31-21, re-drill ng 2450 ft, td 4010 ft.

YOLO COUNTY—Pacific Inland Oil Co.'s Guinda 1, 23-12-3, sd 3000 ft.

SOUTHERN CALIFORNIA

FULLERTON—Orangethorpe Corp.'s Skinner 1, 32-3-10, dr shale 3780 ft.

HAWTHORNE—Nelson S. Hogan's Hogan 1, 23-3-14, rigging up.

HERMOSA BEACH—Tulsa Oil Co.'s Hermosa 2, 6-4-14, co 3140 ft.

NEWHALL—W. T. Ball's Newhall 1, 34-32-16, dr gray shale, 2400 ft. Spencer and Brubaker's No. 1-a, 8-3-16, dr hard sand 100 ft. Southern California Drilling Co.'s No. 2-1, 13-3-16, dr shale, streaks oil sand, 1740 ft.

PLAYA DEL REY—Cooperative Development Co.'s No. 1, 26-2-15, dr brown shale, 4100 ft.

OKLAHOMA FIELDS

Two City Tests Look Dry; Blocking for North Oklahoma Test; Okfuskee Gasser Offsets Dry Hole.

FLOYD SWINDELL, ***Staff Representative, Tulsa, Oklahoma***

Two Oklahoma City Tests Look Like Dry Holes

Oklahoma City, Okla.—Two Wilcox tests in the southwestern portion of the Oklahoma City pool were showing as dry holes during the week and may be abandoned, although it is possible that they may be converted into small producers from upper horizons. The most important of these is Russell Petroleum Company's Russell Community 1, NW SE NE NW Section 22-11n-3w, westermost completion in that portion of the pool, which set six-inch casing at 6430 feet and drilled to 6581 feet. The hole was bailed dry and shut in for 12 hours, after which operators recovered only one-half bailer of fluid. The hole was then cored from 6581 to 6586 feet, in which interval two feet of hard sand was recovered. This sand had not been definitely identified but is thought to be Prue sand which produces gas higher on the structure and has yielded small amounts of oil in the southwestern portion of the pool. The test is an irregular west offset to Phillips Petroleum Company's Garver well which produced only 210 barrels in 4½ hours and made only 9,000,000 cubic feet of gas. The Russell test will be drilled to Wilcox sand but is likely to find that horizon below the oil-water contact.

Indian Territory Illuminating Oil Company's Miller 1, CNE NE NW Section 35-11n-3w, the second test to show as virtually a dry hole, had Prue sand from 6603 to 6615 feet and Wilcox sand from 6675 to 6685 feet. With bottom of the hole at the latter depth, operators swabbed three barrels of oil and three barrels of water per hour for eight hours, the oil thought to be coming from Prue sand and the water from Wilcox sand. After being shut in for a short time the well swabbed 37 barrels of oil in three hours and the production was water free. This probably is due to the fact that the swab was not run deeply enough to encounter the water which is known to be accumulating very slowly. Neither test can be produced on the basis of the showing so far made and they probably will be plugged back to test upper horizons. Both are on the edge of the defined productive zone.

Seven Completions

Seven new completions were made during the week, two of these being in the better-than-50,000 barrels gusher class. Slick-Urschel Incorporated et al's Classen-Edwards 13, CN½ SE NE SW Section 3-11n-3w, the largest completion of the group, flowed 2793 barrels the first hour through a four-inch choke. Gas was estimated at 81,000,000 cubic feet, production coming from Wilcox sand at 6323 to 6435 feet, the total depth. The 24-hour calculated potential at this rate would be 67,032 barrels.

Phillips Petroleum Company et al's Gentry 1, CEL NW SW NE Section 3-11n-3w, runner-up to Classen-Edwards 13, gauged 8141 barrels in 3½ hours and was making gas at an estimated rate of 41,000,000 cubic feet flowing through a six-inch choke. Wilcox sand was reported from 6295 to 6431 feet. It's 24-hour calculated potential would be 55,824 barrels.

Champlin Refining Company et al cemented 6⅝-inch casing 18 feet below top of the Wilcox sand and Central 6, CW½ NW SE SE Section 3-11n-3w, produced only 714 barrels in four hours and was rated at only 7,000,000 cubic feet of gas. Wells on the Slick Estate Central lease were completed as relatively small producers to the east, there apparently being a bad local spot in the southeast 40 acres of the section. Champlin et al's Central 5, N½ SW NW SE of the same section yielded 9181 barrels in 7½ hours from Wilcox sand at approximately the same depth but with practically twice the penetration. Central 6 found Wilcox sand from 6257 to 6323 feet, giving it a penetration of 66 feet. Operators are unable to explain the fact that 6⅝-inch casing was set and cemented at 6275 feet, 18 feet below top of the Wilcox sand, which certainly shut off most of the gas and a considerable amount of the oil. The well probably will be

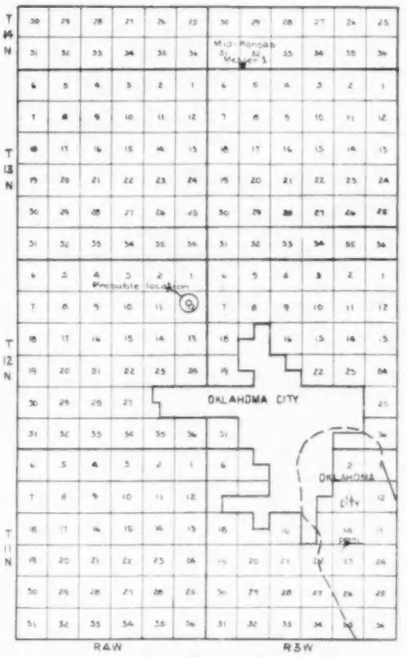
drilled deeper and it may be decided to plug back and whipstock out of the casing above the sand.

A completion which will be attended with considerable interest will be that of Phillips Petroleum Company's Haddox 1, CS½ SE SW SE Section 15-11n-3w, in an area which has yielded a number of very small wells. It is the first Wilcox sand test to be completed with cable tools in the Oklahoma City pool. Standard tools were rigged up after drilling to Wilcox sand and setting seven-inch casing at 6474 feet. At 6480 feet the test was showing a small amount of oil and about 3½ million gas. The main pay was found in the last 12 feet of sand from 6480 to 6492 feet, the total depth. Initial production was 441 barrels of oil and 23,500,000 cubic feet of gas in five hours. Operators are changing connections and will give the well further tests during the next few days. Early in the history of development Wirt Franklin Petroleum Corporation attempted drilling deeper in one of the Lowery wells but could not make cable tools stay on bottom due to excessive formation pressure. This attempt was made without resorting to the use of a lubricator.

Other completions of the week were as follows: Phillips Petroleum Company et al's Highland 3, CNL SE SW NE Section 10-11n-3w, Wilcox sand 6302 to 6410 feet, initial production 1190 barrels in one hour and 16 minutes flowing through a 2½-inch choke against 500 pounds back pressure; Anderson-Kerr et al's Gallagher 1, NE SW NW SE Section 22-11n-3w, Wilcox sand 6480 to 6580 feet, initial production 1202 barrels in 45 minutes, flowing through a 4½-inch choke against 175 pounds back pressure and with gas estimated at 40,000,000 cubic feet; and Murray and Stephens', Harper-Turner 1, NE NE NW SE Section 22-11n-3w, Wilcox sand 6440 to 6520 feet, initial production 581 barrels in two hours and gas at the rate of 44,500,000 cubic feet.

Blocking Acreage for Test North of Oklahoma City

Oklahoma City.—Oklahoma County is soon to have a wildcat test of more than usual interest if there is any truth in rumors which have been prevalent since the first of the year and which were revived during the past week, when it is understood several lease assignments were made in perfecting a community block for the test. According to reports the location will be made in Section 12-12n-4w and the test spudded not later than August 31. Acreage is owned by Carter Oil Company, Gypsy Oil Company, and Sinclair Prairie



Showing probable location of Carter Oil Company et al's wildcat test with relation to the Oklahoma City pool and Mid-Kansas Oil & Gas Company et al's Messer discovery well.

Oil & Gas Company, with smaller holdings by Slick Estate and others. Carter Oil Company has been gradually adding to its holdings in the area until it is the largest owner. Although no definite information has been released in regard to the nature of the structure it is understood that core drill tests have indicated a favorable condition.

The test, if located in the rumored section, will be less than two miles northwest of the Oklahoma City limits and approximately eight miles southwest of Mid-Kansas Oil & Gas Company et al's Messer 1, SW SW SW Section 32-14n-3w, a wildcat discovery well completed in September, 1930 for an initial production of 732 barrels in 16 hours from Wilcox sand at 6697 to 6771 feet. Geological studies indicate the area to be one of the highly prospective spots in central Oklahoma.

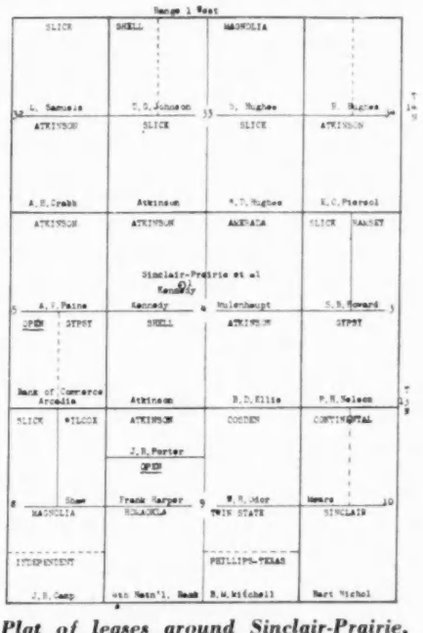
Logan Workover May Have Something Important

Guthrie, Okla.—Shell Petroleum Corporation's McCulley 6, NE SW SE Section 30-19n-4w, an old well drilled deeper in the Marshall-Lovell area of Logan County, flowed 275 barrels in 12 hours from a sand thought to be the equivalent of the School Land Sand in the Oklahoma City pool. Top of the sand and total depth is 6171 feet. With the sand just scratched importance of the find is not determined at this time but initial performance marks it as a development which will bear watching. Operators have recently completed a long fishing job and the well has been on drilling reports for many months. The Marshall-Lovell area is situated in northwestern Logan County on a northwest-southeast trend which includes the Oklahoma City pool and Mid-Kansas et al's Messer well southwest of Edmond. McCulley 6 formerly produced from what was thought to be upper Simpson.

Sinclair Prairie to Spud Arcadia Test in Ten Days

Oklahoma City.—According to reports from Oklahoma City, a brisk "sellers market" has developed in royalty around Sinclair Prairie Oil & Gas Company et al's wildcat location in the Arcadia district, but few actual sales have been completed. Considerable royalty has been taken on 10 to 30-day options, subject to spudding of the test which is located in the CSE NW Section 4-13n-1w, two miles south of the town of Arcadia. Cellar and pits are being dug and gas and water lines are under construction. Rig and tools probably will be on location within the week and the test should be spudding within the next 10 days. Drilling will be done with rotary tools.

The average price of offset royalty is said to be about $100 per acre grading down to $50 or $60 per acre a mile from the test. A considerable amount of the royalty is held by brokers who purchased about two years ago and are



Plat of leases around Sinclair-Prairie, Kennedy 1, CSE NW Section 4-13n-1w. The operating company has half interest in all leases carried under the name of Slick. County records show that two 80-acre tracts within less than a mile of the test are still open for lease.

holding for higher prices but moving practically nothing. The highest prices average around $200 per acre and range up to $250.

Stanolind Explains Ranger Stored Oil Movement

Tulsa.—Persistent reports that Stanolind Crude Oil Purchasing Company has been purchasing large amounts of crude oil from storage in Texas have been brought to officials of that company who issued the following prepared statement:

"There have been various announcements concerning the Ranger crude in storage which was purchased by Stanolind Crude Oil Purchasing Company from Sinclair Prairie Oil Marketing Company. This crude was not purchased to move to Standard Oil Company (Indiana) refineries. It was purchased in order to fulfill a contract whereby Stanolind Crude Oil Purchasing Company delivers a certain quantity of crude to the Sinclair refinery at Houston, Sinclair Prairie Oil Marketing Company furnishes this crude in the field and was unable to furnish all of the required amount from leases, making it necessary to move storage crude from Ranger to Houston."

Okfuskee Gas Producer Offsets Old Dry Hole

Okemah, Okla.—Burke-Greis Oil Company is completing as a gasser, Grayson 1-A, CNE NW SE Section 32-12n-10e, offset to an old dry hole in the old productive area two miles northeast of the town of Okemah in central Okfuskee County. After logging top of the Hunton lime at 3530 feet operators encountered the gas sand at 3552 to 3577 feet, where the initial gauge was 25,000,000 cubic feet of dry gas with a rock pressure of 1575 pounds. It is now shut in.

Ute Oil Company reported a failure in Cromwell sand in its No. 1, SW NW SE Section 18-10n-7e, approximately mid-way between the Seminole and Cromwell districts. Cromwell sand was logged from 3767 to 3773 feet. Operators bailed down and the hole filled rapidly with water. It will be abandoned.

Manahan et al tubed their No. 1, CNW SW Section 10-7n-8e, in the Wewoka-Holdenville area of western Hughes County, and produced 54 barrels the first two hours from sand at 2875 to 2923 feet. After a two-hour tubing test the well was opened wide through eight-inch casing for 15 hours, during which time it produced 450 barrels.

Oklahoma Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
COTTON COUNTY—		
Wilson-Kinnett, Wilson 1, nwc sw sw nw 6-2s-9w	*	2196
CREEK COUNTY—		
Seth Herndon, Harrison 1, nw se sw 18-14-9e	*	2412
Ford Production Co., Littlehead 3, nwc sw se 17-17-10e	5	2112
Curtis Oil Co., Self 1-A, se c sw nw 22-17-10e	3	545
Wilson Petroleum Co., Bucktrot 5-B, ne nw nw 35-17-10e	¶¾	2300
G. L. Reasor, Riefer 1-A, nw c se sw 29-17-12e	*	2430
Wilrough Oil Co., O. U. R. 2, sec nw nw 32-17-12e	125	2421
Michigan Petroleum Co., No. 1. Montgomery, nwc se 1-18-7e	15	2650
Bert Swift, Smith 1-A, ne c sw nw 16-18-9e	19	2469
Baltzell, Land 3, nw sw nw 12-18-11e	5	2056
Elliott & Shell, Smith 2, se ne se 18-19-9e	77	2224
Johnson Oil & Ref., Boyd 2, nw se nw 29-19-9e	205	2227
GRADY COUNTY—		
Lesh & McCall, Slaton 1, nwc 34-4-7w	*	2685
McINTOSH COUNTY—		
Harmon Oil Co., Porter 7, ne c sw 3-12-14e	*	1745
OKLAHOMA COUNTY—		
Wirt Franklin Pet. Corp., Theimer 2, ne c 2-11-3w	¶35-39	6582
Phillips Petroleum et al, Gentry 1, nw sw ne 3-11-3w	¶33-8141	6431
OKMULGEE COUNTY—		
J. E. Wallace, Colbert 1, sw nw nw 14-14-14e, (owdd)	*	1777
PAWNEE COUNTY—		
Privett Drilling Co., Harned 2, ne c sw se 3-20-6e (owdd) 2 bbls.	¶2	3123
POTTAWATOMIE COUNTY—		
Darby Pet. Corp., Youngblood 1, se c nw 16-7-4e (cwdd)	10	4131
STEPHENS COUNTY—		
Pace, Watkins 14, ne c se 2-2s-7w	100	1847
McAlester, Dare 1, swc nw 1-2s-8w	60	1472
Pace, Houston 9, se c sw 2-2s-8w	25	1512
TULSA COUNTY—		
H. Bowden, Perryman 4, nw ne nw 4-17-14e	10	1551
WAGONER COUNTY—		
Hartman, Sarty 2, se c nw 7-17-16e	*	985

New Operations

CARTER COUNTY—Lundy et al, McConnell 1, se c sw sw 18-1s-2w. Robb et al, Burton 2, swc ne 31-1s-2w.

CREEK COUNTY—Blackstock & Atkinson, King 1, swc ne 31-16-7e. Murta, Sherry and Carter Oil, Wilson 7, se nw nw 32-17-12e.

HUGHES COUNTY—H. B. Gentner, swc 11-7-8e. Milton & Capshaw, Holmes 1, sec sw 11-7-8e.

MUSKOGEE COUNTY—Robinson Oil Co., London 5, cel nw sw 17-13-16e.

OKLAHOMA COUNTY — Phillips Petroleum, Roly 1, nw sw sw nw 2-11-3w. I. T. I. O., Wise 1, sw se se 26-11-3w. Sinclair-Prairie, Kennedy 1, nwc se nw 4-13-1w.

OKMULGEE COUNTY—Cole & Claypool, Banks 1, ne nw se 5-13-12e, (owdd). J. H. Rebold, Martin 1, se sw sw 15-13-12e. C. L. Reasor et al, Ragsdale 1-A, sw ne se 30-14-12e. Bryan Pet. Co., Corbray 1, se c sw 23-14-14e, (twin).

PITTSBURG COUNTY—Nelson & Flynn, Anderson 1, ne c sw 12-7-13e.

PONTOTOC COUNTY—Harris & Hayes, Brown 1, ne c sw ne 28-5-6e. W. A. Delaney, Smith 1, csl ne ne 29-5-8e. Sutphin & Tilley, Miller 1, se c nw 27-5-6e.

POTTAWATOMIE COUNTY—Phillips Petroleum Co., 1, ne c se 35-7-4e.

TULSA COUNTY—Murray et al, csl sw se 17-19-14e. Holmes Oil Co., Harrison 1, ne nw se 30-19-10e.

WAGONER COUNTY—J. K. Oil Co., 1, ne c sw 19-17-17e. La Pierre et al, 1, se c 14-18-15e. C. Lambert et al, 1, cel se se 22-18-15e. Sheridan Oil Co., 3, c se nw 26-18-15e.

Wildcat Drilling Report

(Wells shut down not included)

OSAGE COUNTY—Mohawk Oil, 1, ne c 10-26-9e, drilling 1400 ft.

KAY COUNTY—Blubaugh et al, Indian 1, c nw se 30-25-1e, drilled plugs 2556-63 ft, est 5M gas.

NOBLE COUNTY—Wentz Oil Corp. et al, Wolff 1, c se nw 17-20-2w, upper Hoover sand 2520-42 ft, dr 2710 ft.

LINCOLN COUNTY—Mote et al, School land 1, nwc, 36-17-5e, V. L. 3935-65 ft, S. O. G. & W., Simpson 3990-95 ft, S. S. O., Wx. 4024-37 ft, td hfw, D&A.

OKLAHOMA COUNTY — Sinclair-Prairie Kennedy 1, c se nw 4-13-1w, bldg rig.

BLAINE COUNTY — Watonga Pet., Masters 1, sw nw nw 27-16-11w, dr 282 ft.

WASHITA COUNTY — Burns & Prince, Dock 1, swc, 21-8-18w, dr 1935 ft.

SEMINOLE COUNTY — Hudspeth et al, Harrod 1, sw ne, 3-8-8e, cellar. Donley et al, Shepard 1-B, se ne, 4-8-8e, td 300 ft hfw, wocs.

PITTSBURG COUNTY—Moffett & Hall, Jones 1, c ne nw, 14-8-14e, dr 1350 ft.

KIOWA COUNTY—Christian, James 1, ne se, 8-7-18w, dr 1310 ft.

PITTSBURG COUNTY—Nelson & Flynn, Anderson 1, ne sw, 12-7-13e, spd. Tape Oil, Fulton 1, se c 34-7-14e (owdd), dr 2820 ft.

GRADY COUNTY—Schoonmaker et al, Slaton 1, nwc, 35-4n-7w, 6-inch top sand 2251-57 ft, dry sand, 2338-50 ft dry, S. 2418-38 cored, 2419-25 ft dry, td 2685 ft, D&A.

PONTOTOC COUNTY—Sunray, Grant 1, c se ne, 11-4-8e. dr 1090 ft in black shale.

GRADY COUNTY — English Drlg. Co., Heenan-Coe 1, ne se ne 32-3-7w, tested sand 2680-85 ft, show heavy black oil, bailed dry and cored 2692-2772 ft, td, no showings, sd.

PONTOTOC COUNTY—Vanderslice, Bolan 3, sw ne sw 17-2-4e, sand 283-87 ft, est 6 bbls., sd. Vanderslice, Meredith 1, ne sw, 17-2-4e, td 317 ft, est 5 bbls. Edna Marie Oil McWhirt 1, ne se, 11-2n-6e, Hunton lime top 191 ft, sd, td 510 ft, still in Hunton.

COAL COUNTY — Fink & Russell, Miller 1-A, se ne 10-2n-8e, (owdd) dr 2395 ft, td, sd for 5 inch.

COMANCHE COUNTY — Trahan-Wilson, Pruitt 1-A, ne sw se 8-1n-9w, td 1701 ft, D&A.

ATOKA COUNTY—Willis et al, Roland 1, nw ne se 6-1-15e, td 810 ft, sd. Hicks et al, Norris 1, ne nw se 15-1-15e, machine. Newman, Bassett 1, c nw, 18-1-15e, sd, td 110 ft.

McCURTAIN COUNTY — Stampfs et al, Harris 1-A, sw nw sw 14-9s-25e, sd td 2778 ft.

MARSHALL COUNTY — J. T. Hogan, Thompson 1, ne nw ne 26-7s-6e, lcn. Hughes, Ayres 1, ne se, 30-7s-7e, dr 490 ft in shale.

ATOKA COUNTY—Brookshire et al, Guinn 1, nwc, 18-3s-10e, dr 2210 ft.

STEPHENS COUNTY — Gillette Bros., Cooley 1-A, nw se nw, 17-2s-8w, rig.

ATOKA COUNTY—Morris et al, Ray 1, 8-2s-12e, ne nw ne, sd 509 ft, td dry.

Small Long Beach Plants Find "Free" Oil Scarce

Long Beach, Calif.—There is a scarcity of "free" oil at Long Beach, and as a result, 10 small refining plants are shut down. Three weeks ago, there was much activity at Long Beach during night time, tank trucks moving crude from leases to small refineries. Much of this "night work" has been done away with. Production is almost down to allotment.

KANSAS FIELDS

Largest Kansas Producer at Ritz; Vickers Asks to Take Oil from Own Wells; Reno County Well to Test Viola.

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

Kansas Commission Faces Oklahoma's Pet Problem

Wichita, Kansas.—The Kansas Public Service Commission at its next meeting will have before it a question which undoubtedly cannot be settled to the satisfaction of operators who are concerned. Due to withdrawal of major purchasers in central western Kansas several wells in the Stoltenberg area have been shut in. By petition Vickers Petroleum Company has indicated objection to the shut down order, alleging that its wells are being seriously damaged by water encroachment. It is asking an order which will permit the taking of oil from its own wells without taking ratably from other wells in the area. This question has been before the proration forces in Oklahoma several times and has caused considerable difficulty. Vickers Petroleum Company proposes to produce and market oil from its wells through its refinery.

A second question which will be brought before the commission concerns a disagreement between Prunty Drilling Company and Shell Petroleum Corporation regarding allowable production in the Door Step pool at the edge of the town of McPherson. Shell Petroleum Corporation is the only purchaser and is a large owner of acreage royalty.

Ritz Well Largest Chat Producer in Kansas

Wichita, Kansas.—Dickey Oil Company has been given a potential of 14,326 barrels in Decker 3-B, NW NW SE Section 35-19s-2w, in the west extension to the Ritz pool, McPherson County. The well was completed July 18, making an initial gauge of 310 barrels in 45 minutes and a subsequent potential gauge of 7163 barrels in 12 hours. Production is coming from the chat horizon at 2916 to 2948 feet. This is the largest chat well ever completed in the state and is the largest from any formation in several years. Top of the chat was found approximately 12 feet higher than in the northwest diagonal offset. This portion of the area has yielded some very interesting completions both from the standpoint of initial production and the relative structural position of offset wells. Early wells drilled in SW Section 36-19s-2w, indicated a normal west and southwest dip off of the Ritz structure. Dickey Oil Company's Decker 1, SE SE SE Section 35-19s-2w, being farther west was expected to be structurally lower than tests in SW Section 36. However, it proved to be at the same position as the second test to the east, thereby showing a change of dip within two locations and indicating that the structure was coming up again to the west.

Will Test Viola Lime in Reno County Wildcat

Wichita, Kansas.—Gled Oil Company, Skelly Oil Company and Shell Petroleum Corporation are to test Viola limestone in Franz 1, CNW NW Section 2-24s-4w, semi-wildcat south of the Georing pool in northeastern Reno County. At 3370 feet in the chat horizon the well was spraying oil at the rate of about two barrels per hour and making 6,000,000 cubic feet of gas. At 3470 to 3495 feet, probably near the base of the Mississippi lime, gas increased to 9,500,000 cubic feet and the well was making 10 barrels of fluid per hour, cutting 10 per cent water. It will be the first test to go to Viola lime in this area.

Harvey County

H. H. Blair and Deep Rock Oil Corporation have announced location for their No. 1, CNW NW SW Section 19-23s-1e, slightly over a half-mile west of the city limits of Newton in east central Harvey County and approximately nine miles from the production. The location is on acreage formerly belonging to Shell Petroleum Corporation, which retained an over-riding royalty.

Activities in Harvey County were due to be increased by two operations through announcement of locations by Olson Oil Company and Shell Petroleum Corporation at Krehbiel 2, C NW SW Section 19-23s-3w; and Nelson 1, C NW NW Section 30-23s-3w, which is now a rig. The same operators announced location for J. Fast et al 1, C NE NE Section 25-23s-4w, in the Goering or Blake area of northeastern Reno County.

Skelly Oil Company will drill to 3200 feet, underream and set eight-inch casing to bottom before going to Arbuckle "siliceous" lime in Melchant 1, NW NW SW Section 6-17s-9w, semi-wildcat less than a mile east of production in the Holyrood area of southwestern Ellsworth County. Eight-inch casing originally was set on formation at 3048 feet but has been underreamed and set down several times, now being bottomed at about 3181 feet.

Slick et al were pulling big pipe and waiting on cement to set in Breford 1, SW SW NW Section 7-17s-10w, approximately five miles west of production in the Holyrood area. Top of the Kansas City-Lansing group was encountered at 3045 feet and at 3055 to 3075 feet the hole was making about one half-million gas. On July 19 the well produced 226 barrels in 16 hours, flowing between the eight and 10 inch casing strings because of an imperfect shut off around the eight-inch shoe. Operators lowered and cemented the eight-inch string at 3095 feet. Production is coming from a pay streak at 3140 to 3152 feet in the Kansas City-Lansing which has yielded nice showing in several other wells in the district but has usually been passed up in favor of larger production in the siliceous zone.

Kansas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BARTON COUNTY—		
Midwest Refining Co., Scheufler 29, ne c sw se 9-20-11w	872	3334
COWLEY COUNTY—		
Wakefield et al, 1, ne c sw 22-32-4e	1393	3282
Slocum et al, Pudden 1, ne c sw ne 16-35-4e	*	1920
GREENWOOD COUNTY—		
Simmons et al, Kolasser 1, ne c sw 12-23-11e	*	1920
Davidson et al, O'Neil 1, nwc ne 20-23-11e	*	2101
MARION COUNTY—		
Dieter & Youker, Helback 1, nw se ne 10-17-4e	*	2340
McPHERSON COUNTY—		
Wolf Creek Oil & Sinclair-Prairie, Krehbiel 1, nw c ne nw 25-19-2w, (owdd)	220	2967
Rolind Oil & Gas, Thomas 1, ne c sw 26-19-2w	90	2964
Dickey Oil Co., Decker 3-B, nwc se 35-19-2w	12 hrs 7162	2948
Skelly Oil Co. et al, Wilson 1, se c nw 35-19-2w	¶5-2702	2967
Mid-Kansas, Helstrom 1, nwc se 35-19-3w	¶8-625	3049
Shell Petroleum Corp., Johnson 2, swc se nw 2-20-3w	¶2½-480	3046
Western Gasoline Co., Wells 1, swc nw se 21-21-3w (owdd)	130	3197½
RENO COUNTY—		
Olson Oil Co., Duckworth 1, nwc se ne 23-23-4w	¶11-600	3375
Olson Oil Co., Sabin 1, nwc se ne 24-23-4w	¶1-225	3372
RICE COUNTY—		
Ramsey, Hilton 1, ne c sw sw 6-20-9w	*	3323
Twin Drlg. Co. & Phillips Pet. Co., Rice 2, ne c se ne 2-21-6w	190	3398½

Company, Well and Location	Initial Production Bbls.	Depth
SEDGWICK COUNTY—		
Stearns-Streeter-Continental Oil Co., Mead 1, ne se se 16-25-1e.....	*	3453
Continental & Gypsy, Bishop 1, nwc ne 13-26-1w	20	3007½
WOODSON COUNTY—		
Pure Oil, Winschawk 13, ne c nw 6-24-14e	25	1580

New Operations

COWLEY COUNTY — Deal Oil, Hatto 1, csl nw sw ne 27-32-4e. Stover et al, 1, ne sw sw ne 27-32-4e. Stover 1, se sw sw ne 27-32-4e.

GREENWOOD COUNTY—A. M. Landon, Smith 1, nwc sw nw 8-24-12e. Lassen et al, Wilkerson 1, nwc ne 7-25-9e.

McPHERSON COUNTY—Mabee and Shell, Nickel 1, nwc 33-21-3w.

RENO COUNTY — Sinclair-Prairie, Regier 1, sw ne se 24-23-4w.

SUMNER COUNTY—Southland Royalty & Watchorn Oil, Rosecrans 1, swc se se 17-35-2e.

Wildcat Drilling Report

(Wells shut down not included)

SUMNER COUNTY—Austin et al, Foy 1, sw se se, 14-34-1w, rig.

HASKELL COUNTY—Victor Martin et al, Martin 1, c nw, 8-28-31w, rig.

SEDGWICK COUNTY—Cameron and Great Basin, Landson 1, c se nw, 13-28-2e, 10-inch 1480 ft, co.

PRATT COUNTY—Ninnescah O&G Hardesty 1, sw se se 28-27-11w, dr 1095 ft.

SEDGWICK COUNTY — Scroggins et al, Bartlett 1, nw se nw nw 35-27-1e, dr 585 ft.

BUTLER COUNTY—Ramsey et al, Michael 1, sw nw nw 18-27-3e, td 1985 ft.

FORD COUNTY—Swain et al, Henthorn 1, c nw, 21-25-24w, td 5205 ft, sd.

EDWARDS COUNTY — Mid-Kansas, Converse 1, sw ne ne 30-24-18w, hfw 4105-15 ft, td 4160 ft, ur 8-inch.

HARVEY COUNTY—Liggett et al, Davis 1, sw se ne, 7-24-1e, T. chat 3050-78 ft, hfw, td 3105 ft, ur 6-inch.

FINNEY COUNTY — National Ref. Co., Wells 1, swc, 13-23-30w, 6-inch 5120 ft, dr 5340 ft.

HARVEY COUNTY—D. R. Louck, Ratslaff 1, sw se nw 9-22-3w, 6-inch 3410 ft, Base Big L. 3524 ft, top Hunton 3620 ft, dr 3676 ft.

BARTON COUNTY—Midwest, Scheufler 29, c sw se, 9-20-11w, swb 27 bbls per hr for 18 hrs, comp.

RICE COUNTY—Roy Ramsey, Hilton 1, sw ne sw 6-20-9w, 6-inch 3185 ft, cong. 3270 ft, 3288-97 ft. S.S.O. Sil. L. 3297-3323 ft, td hfw, D&A.

BARTON COUNTY—Skelton Oil, Ott 1, c se se 16-19-14w, S l. L. 3530 ft, td 3604 ft, sd.

RUSH COUNTY—Barnsdall et al, Schultz 1, swc 3-19-16w, rig.

McPHERSON COUNTY — Snyder et al, Carlson 1, se c, 4-19-3w, 15-inch 1530 ft, td and sd.

MARION COUNTY—Detrick et al, Dalke 1, nw se, 16-19-1e, dr 495 ft.

BARTON COUNTY — Smith, Ash et al, Wilson 1, c nw sw 13-18-14w, rig.

RICE COUNTY—Slick et al, Orth 1, se se ne, 27-18-10w, T. Sil. 3236 ft, 3241-43 ft hfo, 3238 ft wocs.

McPHERSON COUNTY—Simmons-Canary, Krehbiel 1, se nw, 33-18-1w, 3900-07 ft hfw, dr 3099 ft.

ELLSWORTH COUNTY—Slick et al, Dreford 1, sw nw, 7-17-10w, oil 3140-50 ft, flowed 270 bbls 24 hrs, now shut in. Leo Morgan et al, Andrews 1, ne sw 3-17-8w, spd and sd.

McPHERSON COUNTY — Sidwell et al, Nichols 1, ne nw nw 28-17-1w, td 580 ft, sd.

ELLSWORTH COUNTY—Raymond Gear et al, Sauberli 1, c sw se 29-16-9w, spd co. Gurley Bros. & Barnsdall, Union Pacific 1, nw sw 7-14-7w, lcn. Walker Oil, Remley 1, sw se ne 23-14-7w, dr 1195 ft.

DOUGLAS COUNTY—Pure Oil, Lemb 1, nw se, 31-14-19e, machine.

SALINE COUNTY—Twin Mounds, Weis 1, cw½ ne nw 20-13-4w, (owdd), td 3401 ft, sd.

GRAHAM COUNTY — Schleimeyer et al, Smith 1, se c 24-8-25w, ru and sd.

EAST CENTRAL TEXAS

One Hundred Forty-nine East Texas Wells Not Flowing; Burning Well Checked; Interest Shifts to Franklin County.

H. H. KING, ***Staff Representative, Fort Worth, Texas***

Check Shows 149 East Texas Wells Quit Flowing

Tyler, Texas.—Surest proof that East Texas operators are fully aware of the value of producing properties in the field from a standpoint of revenue source is offered by the absence of any appreciable number of first class properties on the market. Prospective buyers with cash to offer have agents constantly searching for operators interested in withdrawing from the field, and no important deals have been consummated recently. Several deals involving part interest sales are now in progress.

There are more than 800 separate companies and operators sharing in the 46-barrel daily allowable per well in the field, and with such a number involved it would be natural to expect a moderate turnover of properties. These owners prefer to stick by the field, which has yielded only three failures on what might be considered proven locations, and take their chance on the allowable not dropping to a non-profitable level.

Sub-leasing and the turning of virgin leases for over-riding interests and bonuses still prevails around the edges of the structure. On the north end of the field, H. K. Spear et al are reported to have acquired the D. Bruner 40.5-acre lease, M. Chandler Survey, Upshur County, from J. H. Burke and others by carrying the latter for a one quarter over-riding royalty interest, with two wells required. Stroube & Stroube have purchased Boone Brothers et al's south 16 acres of the J. S. Loftin 56-acre tract, McKinney-Williams Survey, Upshur County, paying $2000 cash, and $20,000 additional from one fourth of the first production, thus giving the former lease on the entire 56-acre tract. J. K. Wadley et al have turned a one quarter interest in their A. H. Tubbs 50-acre lease, D. Sanches Survey, Gregg County, to Long Drilling Company for which the latter is to drill four free wells. This lease is on the east edge of the field. Shell Petroleum Corporation has farmed out its Caddie Fisher 133.22-acre lease, John Ruddle Survey, Gregg County, to L. C. Collins et al, and will be carried for a 5/16 over-riding royalty interest. Two tests are being started in the northwest and southwest corners of the tract, which is on the extreme east edge of the field.

Sun Oil Company's Ed. W. Barker 2, located a short distance south of the first producers to make salt water and on the west edge of the Kilgore area, was completed flowing pipe line oil at a sub-sea depth of 3321 feet. Extra precaution was taken against pulling in the water in completing this structurally low well, and the initial gauge, amounting to a flow of 10 barrels of oil per hour, was via a 20/64-inch choke on two-inch tubing from sand at 3687-89 feet. The first Woodbine series was topped at minus 3310 feet, but was mostly shale, otherwise drilling would have been halted at a higher sub-sea depth. Barker 2 is located in northeast corner of 77-acre lease, A. M. Ryan Survey, and was drilled as a southwest offset to Weaver-Crim Corporation's Ben Peterson 1, which made a big well at minus 3305-07 feet. Tidal Oil Company recently farmed out the west 10 acres of its Terrell lease, which was a normal offset to the above two wells, while Magnolia Petroleum Company for the same reason surrendered the south half of its Florey 50-acre lease to royalty owners rather than drill the required offset and risk water. Sun Oil Company's Barker 2, located in the southeast corner of its lease is making from two to 21 per cent cut oil in flowing its allowable via bottom hole choke.

The light rotary outfit used in drilling the so-called midget wells was completing late last week Solar Exploration Company's J. S. & Frank Elder 2, located on northeast edge of Kilgore townsite, after having logged sand at 3523-35 feet with a total depth of 3550 feet. A string of three-inch casing was cemented at 3492 feet after drilling the sand with full width hole.

Taper-Tubing

Atlantic Oil Producing Company is now making use of three combinations of taper tubing strings in completing its wells, having lately adopted slightly larger sizes. Tubing strings made up of three quarter and one inch pipe afford a maximum flow of about 22 barrels of oil per hour on

initial gauges, while the peak flow through 1¼-inch tubing is about 33 barrels per hour. This company's more recent completions have been equipped with 1¼- and 1½-inch strings, resulting in a limit of about 64 barrels oil per hour.

Salt Water in Woodbine

Hawkeye Petroleum Corporation's Mackey 1, located on the west flank of the extreme north end of the Tast Texas field, tested salt water in Woodbine sand, shale and ash at a total depth of 3720 feet after cementing pipe below a water sand that has been found above the oil horizon in semi-wildcat wells in eastern Upshur County. Information on Mackey 1, which is located in northeast corner of 50-acre lease, T. Hopkins Survey, has been conflicting, with the bottom of the hole also reported at 3763 and 3870 feet. At 3720 feet, the minus would be 3375 feet.

A revised check on the salt water situation in the field by scouts reveals a total of 112 wells making cut oil. Their compilation on the pumping wells credit a total of 149, including dead wells. The new list credits 10 wells with having ceased flowing within the past two months, while during the same period 11 new completions on the east flank of the structure went on the pump for initial gauges. Sun Oil Company is installing a central power pumping unit on its Ellen Till 126-acre lease, M. V. Pena Survey, located on the southeast edge of the Joiner area. This unit will be capable of pumping eight wells. The three wells on the lease require swabbing to kick-off each day, then flow their allowable.

Frank Russell Petroleum Company's C. C. Crews 1, located on the west edge of production and near a group of wells making water, was completed making 52½ barrels pipe line oil per hour through one-inch choke on two-inch tubing from sand at 3589½-3591½ feet. The bottom of the hole is 3320½ feet below sea level. It is on the south 35-acres of Continental Oil Company's Crews 160-acre producing lease, L. Perkins Survey, and a short distance northeast of a dry hole.

Extinguish Upshur County Well Fire After Five Days

Longview, Texas.—Injection of fresh water under pressure through tubing extinguished the flames at Steen Drilling Company's A. R. Loden 1, located on northwest flank of the East Texas oil field, after the well had burned for five days. The well is located on the west line of 27-acre lease in northwest portion of the G. W. Hooper Survey, Upshur County, and caught fire from a leaky flow line about 11 p.m. July 22 after being on production about 14 days. Guardsmen on proration duty in the field stripped the connections from the well with gun fire so as to permit the engaging of the water line with the two-inch tubing already in place. This was the first important well fire in the field in a number of months.

Elevated Roads for East Texas Swamps

Tyler, Texas.—Development of swamp covered leases held by Stanolind Oil & Gas Company and Pure Oil Company on the south end of the East Texas field has led to the building of a net work of elevated roadways and islands for the well sites by transplanting soil from dry land. This means of providing access to the well locations is not much more expensive than building bridges and corduroy roads, and is expected to be premanent except for occasional erosion. The installations have been made on the two companies' W. H. Siler 949.6-acre lease in the west portion of the M. Walker survey.

Stanolind Oil & Gas Company operates the joint property. Three completed wells within the swamp area have been connected with a roadway that is about 14 feet in width, and averages six feet in height extending parallel to Johnson Creek, which is the source of water supply for the swamp. So as to avoid blocking the progress of flood waters a bridge about 300 feet in length has been built across the stream, with a dump then connecting the well locations with dry land. An island of about 65 feet in diameter has been thrown up at each of the well sites, thus allowing an elevated position for derrick, boilers, tanks, etc., with room to spare for trucks to pass. Hauling of the dirt in trucks packed the islands sufficiently to safely install drilling derricks, which have since been set on concrete corners to stand permanently. Bermuda grass has been planted on the flanks of the dump and islands to prevent erosion, while waste oil will be used on the surface of the elevated roadways.

An "elevated road" built through an East Texas swamp furnishes means for developing properties of the Stanolind Oil & Gas and Pure Oil Company.

Wildcat Interest Shifts To Franklin County

Tyler, Texas.—The center of wildcat interest in territory radiating out from the East Texas field has shifted to Franklin County in the northeast corner of the state where a pronounced faulted condition has formed the basis of an active, but low priced lease and royalty buying campaign. Franco Oil Company's (J. F. Mills, A. P. McGee and L. S. Harper) wildcat on the L. S. Harper 118-acre tract, W. N. Dawson Survey, is reported as having drilled a short distance into the Woodbine series to a total depth of about 3285 feet, with a minor fishing job delaying further progress.

This test and two previous failures afford sufficient sub-surface data to reveal the presence of a fault. Lease buyers are taking protection in anticipation of one or more additional tests being drilled at better located points in relation to the fault. Gulf Production Company gave the area a test some years ago and encountered salt water in the Woodbine horizon. This was and still is the highest test structurally in the area, and has since been proved to be on the upthrow side of the fault. Harper-Byers & Company's A. J. Laws 1, D. G. Rogers Survey, located southeast of the Gulf Production Company failure, was drilled on the downthrow side, and quit last August in red shale at 3841 feet. The third and latest test is to the south of the latter, and is

apparently on the upthrow side, having logged top of Pecan chalk at 1320 feet, with surface elevation of 356 feet, but other important markers are uncertain as several "vouched for" logs have reached general circulation.

The most favorable trend is to the north and northwest with lease purchasers, who have been paying from $1 to $6 per acre. Sufficient money has changed hands for leases and royalties to assure the financing of more tests along the fault regardless of the outcome of Franco Oil Company's test.

Southwestern Rusk County has two wildcats in prospect as result of lease buying and obligations assumed lately in the New Salem area. Pilot Oil Company and Cranfill-Reynolds Company is expected to make a location on a block rounded out last week, while R. H. Lemmon and A. F. Richardson and to drill on the Luke Motley 498-acre tract, Sanches Survey, with a 3450-acre block in Rusk and Cherokee Counties.

Central East Texas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
JOINER—		
Amalgamated Oil Co. (was Dumas), Cook (35-ac) 2	9600	3718
American Liberty Oil Co. (Golding-Murchison), Kinney (336-ac) 11	4500	3636
Arcadia Ref. Co., J. R. Green (55-ac) 4-A	8500	3753
Mills Bennett Prod. Co., E. L. Pinkston (108-ac) 6	7000	3640
Champlin-Bass, Inc., R. G. Mason (40½-ac) 3	9000	3646
Gulf Prod. Co., T. B. Cashen (125-ac) 7	9000	3775
Mayfield (101-ac) 6-C	8000	3665
G. G. Turner (312-ac) 14	10,500	3772
Humble O&R Co., M. D. Caldwell (73.1-ac) 5	9600	3722
Jackson-Wise & Snedden, J. H. Stewart (27-ac) 3	5000	3707
Lone Pine Oil Co., J. B. Wilson (10-ac) 2	9000	3666
John E. Mabee, Inc., W. P. Brett (40-ac) 4	8500	3712
C. L. McMahon-Ed. Moore & J. W. McCulloch, Cook (40-ac) 4	7500	3710
J. R. McMurray et al, R. W. Fair 3-A	9500	3666
Mid-Kansas O&G Co., H. Clay (130-ac) 3	3000	3712
M. M. Cross (814-ac) 22	4500	3637
W. T. Grissom (842-ac) 7	6500	3659
W. T. Grissom (842-ac) 9	7200	3664
H. D. Kelly (86-ac) 2	6000	3694
D. Ledbetter (212-ac) 2	5000	3637
R. G. Mason (104-ac) 5	3000	3696
J. H. Sharp (482.67-ac) 5	7000	3635
Sinclair Prairie Oil Co., Peter Tipps (230-ac) 6	6500	3654
B. L. Synder et al, H. P. Leverett (16-ac) 1	4000	3808
Stanolind-Pure Oil Co., R. J. Burton (145-ac) 7	10,000	3656
W. H. Siler (949.6-ac) 11	9000	3646
W. H. Siler (949.6-ac) 15	12,000	3633
Stroube & J. L. Collins & Co., L. J. Pinkston (53-ac) 4	6300	3685
G. Clint Wood Drl. Co., J. B. Irwin-Gulf (35-ac) 4	8400	3810
Sun Oil Co., E. O. Henson (54-ac) 5	9000	3645
H. A. Pace (643-ac) 4-B	6200	3719
KILGORE AREA—		
J. S. Abercrombie & Harrison Oil Co., Cantrell 10	12,000	3668
Arkansas Fuel Oil Co., C. Brown (100-ac) 4	6500	3670
M. B. Hughey-Ross (220-ac) 7	7200	3600
Cal-Tex Oil Corp., W. R. Crim (50-ac) 3	11,000	3610
Devonian Oil Co.-Gulf Prod. Co., Motley (423-ac) 14	5000	3749
East Texas Oil Ref. Co., E. Mitchell (21-ac) 3	11,500	3612
Empire Gas & Fuel Co., A. A. Lockhart (40-ac) 3	6000	3662
Everts Drl. Co., C. M. Barton (10-ac) 2	300	3632
Jack Greenwood & Otto Massey, M. Loughridge (25-ac) 2	8000	3738
Gulf Prod. Co., L. D. Crim (70-ac) 6	8500	3633
G. W. Culver (203-ac) 13	7800	3557
S. Hilburn (273-ac) 29	9000	3559
S. Hilburn (273-ac) 35	10,000	3589
S. Hilburn (273-ac) 36	8500	3561
J. T. Sexton (165-ac) 4	7500	3729
K. Hughes et al, Adkins-Gray (9-ac) 2	6000	3675
Humble O&R Co., S. S. Laird (230-ac) 14-A	9600	3681
L. R. Reid (70-ac) 4	4000	3715
T. A. Johnston & John Owen, M. T. Cole (29-ac) 1-C	8000	3545
Ed. M. Jones & Houston Oil Co., B. F. Hindman (21-ac) 4	9000	3669
Louisiana Oil Ref. Co., N. Mayfield (40-ac) 4	500	3724
Luling O&G Co., W. P. Brightwell 3-A	7800	3662
Magnolia Pet. Co., Naomi Towles (8½-ac) 2	11,000	3658
Navarro Oil Co., E. G. Green (23-ac) 3	250	3577
Patrick Prod. Co., J. B. Watson 1-B	14,000	3642
Redgrave & Fagan, A. Wynn (5-ac) 1	11,000	3680
Republic Prod. Co., B. F. Hindman 4	10,000	3666
Shell Pet. Corp., Williams-Bonner (36-ac) 4	8500	3605
Sinclair Prairie Oil Co., S. G. Andrews (200-ac) 12	9000	3488
A. A. King (111-ac) 8-B, Tract No. 2	11,000	3450
H. R. Smith, Inc., R. Gray (31-ac) 2	6000	3597
Sun Oil Co., Ed. W. Barker (77-ac) 2	3000	3689
Wm. Pentecost (131-ac) 6	12,000	3651
G. Reese (124-ac) 8	11,000	3649
Sun Oil Co.-Cranfill-Reynolds Co., J. C. Campbell (107-ac) 2	8200	3556
The Texas Co., J. W. Radford (50-ac) 1	6000	3664
S. D. Walker (213-ac) 4	7000	3580
Sam Thomas et al, H. McNeely (5½-ac) 2	13,000	3676
Uscan Oil Co., A. M. E. Church (1.23-ac) 1	7000	3547
Wheelock & Collins, Wm. Clayton (72-ac) 6	5000	3585
P. N. Wiggins et al, L. Martin (13-ac) 1	4500	3724
Zenith Oil Co., J. C. Clayborn 3	9000	3725
LONGVIEW AREA—		
Arcadia Ref. Co., A. O. Phillips (25-ac) 2	1200	3672
Arkansas Fuel Oil Co., J. W. Harrison (30-ac) 4-B	13,000	3573
Arrow Drilling Co. et al, A. Baughman (2-ac) 1	7200	3554
Atlantic Oil Prod. Co., Joe Bander (83.9-ac) 8	9000	3624
Ethel Burnside (204-ac) 8-A	9600	3534
W. T. Burnside (230-ac) 3-B	11,000	3520
J. C. Judge (520-ac) 4	10,000	3524
J. C. Judge (520-ac) 6	15,000	3526
J. C. Judge (520-ac) 9	11,000	3518
J. C. Judge (520-ac) 17	8000	3529
P. McGeorge (40-ac) 2	9000	3546
J. M. Moore (456-ac) 8	12,000	3525
J. M. Moore (456-ac) 11	11,000	3529
J. M. Moore (456-ac) 16	10,000	3534
Helen Pritchard (100-ac) 7	10,000	3530
Atlantic & Sun Oil Co., R. C. Barnswell (49-ac) 3-B	7000	3542
R. C. Barnswell (51.35-ac) 5-C	8500	3528
M. Hays (448-ac) 7	10,500	3550
M. Hays (448-ac) 16	10,000	3555
Atlantic & J. K. Wadley, Joe Bander (83.9-ac) 8	9000	3624
Brown Eagle Oil Co., T&P Ry. Fee 1	7500	3632
Columbia O&G Co., A. Christian (20-ac) 2-B	10,000	3616
Cranfill-Reynolds Co., R. C. Barnswell (50-ac) 3	12,000	3535
Dyke Oil Co., J. M. Christian (37-ac) 4	8500	3590
E. & D. Oil Co., Inc., J. W. Free 2	7500	3725
Empire Gas & Fuel Co., Joe Bander (93-ac) 9	9600	3622
T. W. Lee 8	8500	3563
Galvez Oil Corp., Mrs. G. Moore (51-ac) 3	9000	3735
Grisham-Hunter Corp., T&P Ry. Co., Fee (2½-ac) 1-F, blk. 32	10,000	3648
Gulf Prod. Co., S. C. Fishburn (200-ac) 11	9000	3500
J. C. Judge (518-ac) 14	10,000	3555
J. C. Judge (518-ac) 18	11,000	3512
J. C. Judge (518-ac) 19	9000	3515
J. C. Judge (518-ac) 26	10,000	3564
M. O. Sheppard (335-ac) 17	9600	3500
Hawkeye Pet. Co., L. L. Mackey (50-ac) 1	*	3620
Humble O&R Co., J. M. Adams (100-ac) 1	8600	3476
J. M. McFarland (57½-ac) 3	9500	3626
E. W. Smith (50-ac) 3	8500	3652
Lee Bros. & Phillips, Johnson 1	11,000	3621
Magnolia Pet. Co., G. W. Richey (45-ac) 4	10,500	3659
Mar La Fay Oil Corp., L. J. Everett (2-ac) 1	12,000	3640
Jim McMurrey et al, Thad Snoddy (11-ac) 3	9000	3614
Meridian Pet. Corp., T. W. Lee (53-ac) 6	10,500	3602
New Process Production Co., Anderson 1	8400	3535
Omega Oil Co. (was Eslick), Nicholson (25-ac) 2	11,000	3598
W. H. Peckham Oil Co., J. B. Webb (25-ac) 2	12,000	3719
J. B. Webb (25-ac) 3	12,500	3721
Pilot Oil Co., T. B. Harris (91-ac) 6	15,000	3524
Pitkin-Gholson Oil Co. & J. Mallard, Bonner (23-ac) 1	8500	3638
Rio Oil Corp., L. Graves (106-ac) 2	12,000	3597
Selby O&G Co., Snavely (361-ac) 7-B	6000	3582
Shell Pet. Corp., W. T. Burnside (160-ac) 8	9500	3546
T. B. Stinchcomb (94-ac) 5	10,000	3512
Louis Sikes et al, L. A. Rodden (10-ac) 3	5500	3607
E. L. Smith Oil Co., C. L. Taylor (60-ac) 2-A	11,000	3532
C. L. Taylor (60-ac) 3-A	10,000	3555
C. L. Taylor (25-ac) 2-B	9600	3500
Stanolind-Simms-Continental Oil Co., Flewellen (200-ac) 9-A	6000	3672
Flewellen (200-ac) 10-A	5000	3703
Stroube & Stroube, J. S. Loftin (40-ac) 1	6500	3639
Sun Oil Co., J. M. Haynes (202-ac) 9	7400	3660
Superior Oil Co., H. Pritchard (100-ac) 7-A	15,000	3563
J. A. Woods & Salome-Cooper Drl. Co., Sheppard (57-ac) 5	8500	3675
Yount-Lee Oil Co., J. Flemister (60-ac) 6	9000	3637
Pat Hopkins (100-ac) 7	10,000	3541
S. G. (Maude) Smith (60-ac) 4-A	9500	3516
VAN FIELD—		
Pure Oil Co., I. D. Miller (60-ac) 4	3500	2988

EAST TEXAS
Wildcat Drilling Report
(Wells shut down not included)

ANDERSON COUNTY—Jack W. Frazier et al's H. L. Hudson (198-ac) 1, M. Rionda sur, materials. W. H. "Bill" Roeser et al's M. A. Davey 1, P. G. Adams sur, dk.

BOWIE COUNTY—Joe M. Burnham-C. W. Robinson & John Greer's F. O. Weiss (949-ac) 1, J. W. Dean sur, elev 388 ft, anhydrite 2945-

3030 ft, dr 3555 ft. Roy E. Anderson et al's A. Y. Breckenridge 1, M. Dykes sur, dr 460 ft.

CASS COUNTY—Lapan-Lovejoy et al's S. A. Orr (320-ac) 1, G. W. Morris sur, ne report.

CHEROKEE COUNTY — Bridges-Chandler et al's Berryman (300-ac) 1, H. Kimble-Dill sur, sd 1550 ft. W. N. Hamilton et al's Dr. P. E. Jones 1, J. D. Hamilton sur, materials. C. M. Joiner Pet. Corp. & Harris' W. W. Martin (275-ac) 1, Daniel Parker sur, elev 335 ft, Pecan chalk 2952-3280 ft, top Austin chalk 3810 ft, dr 3850 ft. Wm. A. Stone et al's Mrs. J. I. Perkins (200-ac) 1, Thos.Stanford sur, sd 2700 ft. Wilson-Stubbs Oil Corp.'s M. F. Ragsdale (53-ac) 1, J. P. Wolfin sur, dr 3110 ft.

DELTA COUNTY—C. M. Joiner Pet. Corp. et al's J. A. Blackwell 1, H. Dunnetella sur, dr 2850 ft. J. O. Wheeler-Neuville & Yarbo et al (was Commercial Oil Dev. Co.'s) Ablovich 1, E. Chick sur, elev 507 ft, Austin chalk 1885-95 ft, sd 3733 ft.

ELLIS COUNTY—Armstrong Bros. et al's Cook (56-ac) 1, S. Frederick sur, sd 215 ft; Reeves 1, Larkin Newton sur, sd 300 ft; J. T. Winn 1, E. Melton sur, sd 1435 ft. Carl Brooks et al's Anderson 1, E. C. Branch sur, sp.

FRANKLIN COUNTY—Franco Oil Co. (J. F. Mills, L. S. Harper & A. P. McGee's) L. S. Harper (118-ac) 1, W. N. Dawson sur, elev 356 ft, top Pecan chalk 1320 ft, dr by junk 3385 ft.

GREGG COUNTY—Lovett & Norris' Rufus Smith 1, R. Slaughter sur, dr 1620 ft.

HENDERSON COUNTY—B. L. Green et al (was J. M. Rogers') M. H. Gossett (103-ac) 1, L. D. Stover sur, A-87, elev 341 ft, top Taylor lime 1450 ft, top Austin chalk 2347 to 2632 ft, sd 2735 ft. H. H. Meyers et al's M. E. Olson (40-ac) 1, Geo. Wilson sur, cem 10-in. cas 102 ft.

HUNT COUNTY—Chandler et al's Mrs. A. Walker 1, J. B. Bowerman sur, cem sur cas.

HOPKINS COUNTY — Harmony Oil Co. (J. F. Roark's) J. L. Taylor (88-ac) 1, John Polk sur, sd 540 ft.

KAUFMAN COUNTY—Stanley Darrill et al's S. Pannill (649-ac) 1, A. Cherino sur, dr 2355 ft.

LAMAR COUNTY — Doyle & Jondreau's Joe Horn (178-ac) 1, H. P. Mayo sur, dr 2995 ft; L. Martin (132-ac) 1, Joseph Deck sur, sd 2445 ft.

LEON COUNTY—Allday & Schuffler's W. H. Thompson 1, N. M. Allen sur, lcn. Leon County Oil Co. (Claude Kavanaugh's), John Morris (200-ac) 1-A, A. F. McWhorter sur, sd 2539 ft.

LIMESTONE COUNTY—C. M. Joiner Pet. Corp.-Miller Drlg. Co.'s W. Stephenson (54-ac) 1, Geo. Gentry sur, sd 1800 ft.

MORRIS COUNTY — Buchanan-Burkhalter et al's Staggers (65-ac) 1, Forbes & Nelson sur, elev 370 ft, hard Pecan chalk 2526-3020 ft, base broken Pecan 3095 ft, claim in Austin chalk 3483-3506 ft, tested dry, sd 3554 ft. Harris Drlg. Co.-C. M. Joiner Pet. Corp.'s C. D. Brown 1, lcn. W. L. Murrell-Geo. L. Pace et al's Walcott-Lott (577-ac) 1, D. A. Russell sur , sp and sd.

RAINS COUNTY—Lone Star Synd. (was C. H. Bayless') J. S. Ownby (160-ac) 1, Alexander sur, elev 461 ft, top Midway 1130 ft, top Pecan chalk 1996 or 2043 ft, Austin chalk 3468-3800 ft, top Woodbine sand between 4440-60 ft, sd for fuel in white sand 4592 ft.

RED RIVER COUNTY—L. G. Priest et al's G. W. Ware (1016-ac) 1, J. Burkham sur, elev 448 ft, sd 380 ft.

RUSK COUNTY—T. E. Castle et al's R. H. Gary (50-ac) 1, J. Latham sur. (Trinity sand test), top Pecan chalk 2678 ft, dr 2800 ft. G. A. Hathaway et al (was Laster & Miller's) Gray 1, Jas. McClain sur, elev 315 ft, Pecan chalk 2180-2537 ft, top Austin chalk 2980 ft, claim show oil 3150-80 ft, td 3519 ft in Georgetown lime, tested salt water and now perforating cas. R. H. Lemon & A. F. Richardson's Luke Motley (498-ac) 1, D. Sanchez sur, lcn

UPSHUR COUNTY—Kinsey et al's D. J. Smith 1, J. R. Davis sur, rig. Scott Nashford et al's McClelland 1, M. P. del Torres sur, materials.

VAN ZANDT COUNTY—Daisy O&G Co.'s Mrs. C. A. Browning (100-ac) 1, J. P. Tackett sur, sd 2286 ft. C. M. Powell et al's W. E. Price (3¾-ac) 1, John Walling sur, lcn. A. C. Roan et al's W. E. Price (7-ac) 1, John Walling sur, lcn.

WOOD COUNTY — DeGenther & F. H. Zeigen et al's M. L. McClain (66-ac) 1, Sam Brooks sur, running surface cas 250 ft. W. B. Saulsbury et al's T. H. Peterson (320-ac) 1, W. B. McNutt sur, A-418. Talko Pet. Corp.'s C. S. Ross (86-ac) 1, F. L. Smith sur, elev 359 ft, top Pecan chalk 2892 ft, sd in shale 3500 ft. Wood County O&G Co.'s Guy Davis 1, John R. Clute sur, sd 2110 ft.

East Texas Border Counties

Completions

Company, Well and Location	Initial Production Bbls.	Depth
SHELBY COUNTY—		
McRobie et al, Windham 1, Wm. Blackburn sur	*	3393
General Minerals Corp., Holt 2, Matthew Moore sur	*	4017

Wildcat Drilling Report

(Wells shut down not included)

HARRISON COUNTY — Ryan Cons. Pet. Corp., J. M. Furrh 1, F. O'Neal sur, rig up & sd. Great Eastern Oil Co., W. L. Rudd 1, Wm. Steele sur, lcn.

MARION COUNTY—Baunauch Dev. Co., Miller 1, H. Fulgram sur, sr td 4090 ft. shale. M. E. Nash et al, Henderson 1, G. L. Bledsoe sur, (320 ac), arr res, td 108 ft.

PANOLA COUNTY — United Prod. Corp., Werner 12, B. C. Jordan sur, dr lime and shale 4079 ft. (upper Trinity test).

SHELBY COUNTY — Prairie Creek Crude Co., J. D. Ellington 1, Jos. Burleson sur, sd for water 1270 ft. Sedberry et al, Pickering 1, Stoddard sur, dr 1900 ft (chalk). Ridgeway & Smith, Polley 1, Domingo Gonzales sur, top Zwolle chalk 1936 ft claimed gas show at 2375 ft bailed dry wo, td 2375 ft chalk. Wray & Dunbar, Hayden 1, D. T. F. Yordt sur, sr td 2183 ft. K. H. Francis, Jno. Mims 1, Mary Smith sur, sp dr shale 1230 ft. (sec hole).

Permits for Texas Wells

New Operations

ARCHER COUNTY—J. J. Moran, Wichita Falls, B. Garrett, 50, 1, Jno. Walker sur, 968 ft from e and 150 ft from n line of sur. McCarty Oil Co., Wichita Falls, W. H. Terrell, 80, 1, W. L. Herring sur, 150 ft from e and 104 ft from s line, blk 17.

BEE COUNTY—C. F. Nichols, Beeville, J. Harris, 10, 2, S 2, Uranga sur, 150 ft from s and e lines of blk. 7.

BROWN COUNTY—E. H. & F. M. Caldwell, Brownwood, J. D. Caldwell, 80, 3, S 277, K.C.S.L. sur, 150 ft s of center of n line.

CALLAHAN COUNTY—S. E. Colgin, Dallas, J. C. McDermott, 163, 5, S 181, B 45, C.C.S.L. sur, 1050 ft from n and 150 ft from e line. J. W. Harris et al, Cisco, I. N. Jackson, 29, 1, No. 1, T&NO sur, 150 ft from s and w lines. Matson Drilling Co., Baird, O. E. Radford, 240, 4, S 20, D&D Asy. sur, 300 ft e of No. 2. J. B. Atwood, Baird, W. M. Abel, 40, 1, S 32, D&D Asy. sur, 450 ft from n and w lines. W. F. Snebold, Fort Worth, E. L. Finley, 102, 1, S 65, Bayland Asy. sur, 1425 ft from n and 750 ft from e line. Shackleford & Urban, Ranger, J. H. Ogle, 80, 21A, 2974, TE&L sur, 777 ft from n and w lines.

CALDWELL COUNTY—Owens & Gunby, Fort Worth, N. L. Dunlap, 75, 1, S. Seal sur, 350 ft from ne and 150 ft from se line.

CARSON COUNTY—Skelly Oil Co., Tulsa, Okla., E. Schafer, 640, 12, S 189, B 3, I&GN sur, 2300 ft from e and 355 ft from s line of sec.

CHEROKEE COUNTY—Mid-Kansas Oil & Gas Co., Shreveport, La., H. D. Kelly, 86, 4, M. S. Coy sur, 660 ft w of No. 2. Taite & Barclay, Tyler, A. T. Oneal, 20, 1, Procella sur, 330 ft from n and w lines.

COOKE COUNTY—Geo. L. Pace, Dallas, A. J. Dennis, 100, 1, Stump sur, 150 ft from w and 2402 ft from s line.

DUVAL COUNTY — Corrected location. Whisenant, Trenchard & French Oil Corp., Laredo, C. W. Hahl, 30, 1, S 44, sw¼ of sw¼, 820 ft from e and 230 ft from s line. McGinley Corp., Laredo, J. A. Lundell 80, 1, sec 48, 200 ft from e and 660 ft from s line. Magnolia Pet. Co., Dallas, G. Wendt, 120, 3, S 44, J. Poitevent sur, 150 ft s of center of n line. E. M. Jones, San Antonio, J. F. Williams, 75, 1, No. 131 sur, 200 ft from n and w lines. DeLange & Frates, San Antonio, C. D. Siever, 622, 1, No. 213, J. Poitevent sur, 2640 ft from w and 1845 ft from n line. Motes-Campbell Co., San Antonio, (Denton Dimmit County), Buchanan & Terrell, San Antonio, E. R. Hagist, 1, S 267, BS&F sur, 1320 ft from s and w lines of sec. Magnolia Pet. Co., Dallas, G. Wendt, 120, 3, J. Poitevent sur, 1170 ft from e and 150 ft from n line. Thomas & Tarver, San Antonio, Duval Ranch, 40, 1, S 576, 150 ft from ne and se line. H. H. Coffield, Rockdale, H. Wendt, 40, 3, S 43, se¼ ne¼, 750 ft from s and 150 ft from e line.

DIMMIT COUNTY — Motes-Campbell Co., San Antonio, Denton Col., 40, 1, S 60, Denton Col. sur, 170 ft from e and 250 ft from s line tr. 34.

FORT BEND COUNTY—Gulf Prod. Co., Houston, F. I. Booth, 1107, 2A, Jno. Rabb sur, 75 ft n of No. 2. T. R. Booth, 452, 3, Jno. Rabb sur, 487 ft from s and 2991 ft from w line.

GREGG COUNTY—Barnsdall Oil Co., Tulsa, Okla., Douglas, 136, 6, W. P. Chisum sur, se corner. Twinn Oil Co., Longview, M. Bonner, 148, 4, J. McRae sur, 660 ft e of No. 3; 6, 245 ft from n and 330 ft from e line. Alma Pet. Corp., Oklahoma City, Okla., C. W. Stokes, 8, 2, H. R. Hokit sur, 400 ft e of center of w line. Frank Russell, Kilgore, F. Stone, 100, 1, B. Anderson sur, 330 ft from s and e lines. J. W. Briscoe, Tyler, N. Crane, 2, 1, M. Van Winkle sur, 165 ft from n and 125 ft from e line blk. 182. Snowden-McSweeney Co., Fort Worth, M. Bonner, 100, 1, J. McRae sur, 1053 ft from e and 382 ft from s line. Welch & Sandler, Kilgore, R. W. Barnett, 107, 5, J. Taylor sur, 330 ft from n and 420 ft from e line. Pelican Natural Gas Co., Shreveport, La., Speer-Laird, 92, 5, A. Norris sur, 330 ft from n and w lines. Pilot Oil Co., Dallas, J. C. Bumpas, 25, 3, W. H. Castleberry sur, 790 ft from w and 330 ft from n line. Louis Sikes, Tyler, F. E. Stancil, 32, 4, T. Allen sur, 425 ft from w and 450 ft from s line. Barnsdall Oil Co., Tulsa, Okla., S. Ferguson, 35, 5, H. Hokit sur, 592 ft from e and 112 ft from s line. A. M. Snyder, Longview, H. Adkins, 1, 1, D. Dainwood sur, center. Amended location. Sells Pet. Inc., Tyler, R. Fisher, 63, 5, W. G. Painter sur, 656 ft n of No. 4. H. B. W. Oil Co., Tyler, Bramlette, 23, 4, D. Sanchez sur, 400 ft from n and 330 ft from e line. Iowa Payne Oil Co., Marshall, J. W. Akin, 20, 2, Wm. Castleberry sur, 600 ft w of center of e line. Mazda Oil Corp., Dallas, L. Butts, 40, 4, W. P. Chisum sur, 160 ft from s and w lines. L. C. Collins et al, Tyler, M. H. Bivins, 120, 1B, W. P. Chisum sur, 600 ft n of No. 1. K. Hughes, Tyler, Adkins, 9, 3, D. Dainwood sur, 400 ft s of center of n line. Douglas Williams, New York, N. Y., C. L. Taylor, 6, 1, Castleberry sur, 235 ft from n and 98 ft from e line. Showers & Moncrief, Inc., Longview, M. O. Sheppherd, 21, 2, Geo. Rains sur, 330 ft from e and 209 ft from s line. Whittle-Kavanaugh Corp., Houston, J. B. Watson, 15, 3, J. S. Caruthers sur, 325 ft n of No. 1. Island Oil Co., Longview, J. W. Akin, 36, 3, Castleberry sur, 133 ft n of center of s line. M. Bonner, 23, 3, J. McRae sur, 1052 ft from w and 244 ft from s line. C. M. Dickson, 20, 1, Jos. Hilliard sur,

330 ft from n and 225 ft from w line. C. M. Dickson, Kilgore, Fee, 9, 1, S. Baggett sur, 330 ft n of center of s line. Shell Pet. Corp., Dallas, B. F Laird, B, 54, 2, L. B. Outlaw sur, 330 ft from n and w lines. A. N. King, 193, 4, G. A. Thomason sur, 220 ft from w and 171 ft from s line. S. C. Fishburn, 100, 4, F. W. Johnson sur, 660 ft s of No. 2. W. T. Burnside, 160, 8, F. W. Johnson sur, 330 ft from n and e lines. J. Moore, 350, 13, F. W. Johnson sur, east of Snavely No. 12B. T. B. Stinchcomb, 94, 5, B. N. Hampton sur, 660 ft s of No. 3. J. S. Elder, B, 73, 5, M. Van Winkle sur, 800 ft s of No. 4. J. Moore, 350, 14, F. W. Johnson sur 677 ft s of No. 2; 15, 465 ft from e and 3463 ft from s line; 16, 627 ft s of No. 8; 17, 695 ft n of No. 11. M. H. Bivins, A, 114, 5, W. P. Chisum sur, 1600 ft from n and 400 ft from e line. Atlantic Oil Prod. Co., Dallas, M. Hays, C, 100, 1, W. C. Alvice sur, 600 ft from w and 330 ft from s line; 2, 330 ft from s and e lines. J. Wilson, 100, 6, W. C. Wakeland sur, 236 ft n of center of s line M. Hays, 442, 24, W. C. Alvice sur, 4338 ft from n and 330 ft from e line. J. M. Moore, 456, 24, Johnson sur, 1705 ft from s and 400 ft from e line. Moyers, 128, 12, McGee sur, 330 ft from e and 660 ft from n line. P. McGeorge, 40, 4, McAnally sur, 282 ft from n and 330 ft from w line. M. Hays, 442, 23, W. C. Alvice sur, 3773 ft from n and 330 ft from e line. A. Tooke, A, 40, 3, W. C. Wakeland sur, 495 ft from e and 330 ft from s line. Sinclair-Prairie Oil Co., Fort Worth, M. Moncrief, 307, 23, W. H. Castleberry sur, 330 ft from s and 1399 ft from e line. A. A. King, B, 337, 20, A. Cormack sur, 330 ft from e and 1825 ft from s line. A. A. King, A, 96, 8, W. H. Castleberry sur, 330 ft from e and 1333 ft from s line. H. J. Thomas, 65, 3, J. M. Norris sur, 236 ft from n and 100 ft from e line. Sinclair Prairie Oil Co., Fort Worth, S. G. Andrews, 200, 13, J. G. Walker sur, 330 ft from s and e lines. J. W. Akin, B, 100, 10, Wm. Castleberry sur, 272 ft from w and 202 ft from s line. M. Lawson, 84, 9, C. H. Alexander sur, 150 ft from s and 685 ft from w line. J. W. Akin, B, 100, 9, Wm. Castleberry sur, 453 ft from n and 330 ft from e line. M. Lawson, 84, 8, C. H. Alexander sur, 300 ft e of No. 9. Gulf Prod. Co., Houston, C. Strong, 138, 8, J. Hoy sur, 639 ft n of center of s line. A. A. King, 53, 4, Jno. Moffitt sur, 1325 ft from e and 330 ft from n line. G. W. Longley, 20, 1, D. Dainwood sur, 278 ft from e and 521 ft from n line. A. Spear, 279, 17, M. Van Winkle sur, 660 ft from n and 500 ft from w line of survey. G. W. Culver, 208, 12, Jno. Wilkinson sur, 660 ft s of No. 8. Arkansas Fuel Oil Co., Shreveport, La., J. D. Davis, 30, 1, D Sanchez sur, 330 ft from n and 220 ft from w line. F. K. Lathrop, C, 101, 6, Wm. Robinson sur, 508 ft sw of No. 2. W. T. Burnside, 209, 6, F. W. Johnson sur, 660 ft s of No. 5. E. Killingsworth, 90, 1, Wm. Robinson sur, 330 ft from n and w lines. Louisiana Oil & Refg. Co., Shreveport, La., W. C. Griffin, 71, 7, L. B. Outlaw sur, 660 ft s of No. 3. Tidal Oil Co., Kilgore, E. R. D. Bivins, 202, 13, W. P. Chisum sur, 741 ft e of No. 12. W. Christian, 47, 3, G. W. Hooper sur, 250 ft from s and w lines; 5, 200 ft from s and e lines. Texas Co., Shreveport, La., T. W. Lee, 210, 7, F W. Johnson sur, 330 ft from n and e lines. G. W. Clark, 60, 5, G. A. Thomason sur, 330 ft from s and 1000 ft from e line. Yount-Lee Oil Co., Beaumont, J. Sneddy, 51, 3, Wm. Robinson sur, 1239 ft from n and 330 ft from w line. S. G. Smith, A, 60, 4, Wm. Castleberry sur, 236 ft from n and 96 ft from w line; 5, 330 ft from s and w lines; 6, 705 ft from n and 150 ft from w line. F. K. Lathrop, C, 114, 5, Wm. Robinson sur, 330 ft from n and w lines. Atlantic Oil Prod. Co., Dallas, Bacle, 30, 5, G. W. Hooper sur, 820 ft from w and 400 ft from s line. Sun Oil Co., Dallas, C. Brown, 100, 6, Wm. McCurry sur, 1290 ft n of No. 1. M. Thomas, 72, 4, P. McAnelly sur, 978 ft from n and 360 ft from e line. Empire Gas & Fuel Co., Gladewater, J. Bander, 93, 6, W. H. Castleberry sur, 330 ft from s and 1554 ft from e line. Simms Oil Co., Dallas, J. J. Flewellen, B, 374, 17, M. Mann sur, 330 ft from s and 2654 ft from e line. Deep Rock Oil Co., Tulsa, Okla., H. Pritchard, 110, 7, F. W. Johnson sur, 370 ft from w and 1650 ft from s line.

GLASSCOCK COUNTY — Continental Oil Co., Fort Worth, H. Phillips, 320, 2, S 24, B 33, T&P sur, 660 ft from n and 1980 ft from w line.

GONZALES COUNTY—Luling Oil & Gas Co., San Antonio, J. L. Dubose, 290, 1, W. R. Whitney sur, 450 ft from n and 780 ft from e line.

GRAY COUNTY—Danciger Oil & Refg. Co., Houston, J. E. Williams, 80, 3, S 7, B 1, ACH&B sur, 150 ft from n and 990 ft from e line s½ nw¼. Texas Co., Fort Worth, McLester, B, 390, 5, B&B sur, nw corner.

HARRIS COUNTY—J. D. Clay, Houston, Bender, 100, 2, R. Dunman sur, 50 ft from e and 160 ft from s line.

HUTCHINSON COUNTY — Harry Stekall, Tulsa, Okla., Whittenburg, 109, 3, S 38, B M23, I&GN sur, 330 ft n of center of s line. J. M. Huber Pet. Co., Borger, Christian, 160, 2, S 33, B Y, M&C sur, 330 ft from s and e lines.

JIM WELLS COUNTY—Catlett & O'Neil, Beeville, H. D. Miller, 2, J. M. Andrate sur, 150 ft from s and 2200 ft from w line.

LIBERTY COUNTY—Cranfill & Reynolds Oil Co., Houston, Moores Bluff, 632, 10, M. Duncan sur, 2100 ft from n and 1500 ft from e line.

LEON COUNTY — Jno. P. Sheffler, Tyler, W. R. Thompson, 197, 1, N. Allen sur, 300 ft from nw and 250 ft from e line.

MONTGOMERY COUNTY — McElroy Oil Corp., Houston, C. A. Damuth, 100, 1, T. J. Nichols sur, 895 ft from e and 972 ft from s line. W. B. Hamilton, Wichita Falls, L. P. Gilbert, 33, 1, J. A. Davis sur, 483 ft from n and 297 ft from w line.

POLK COUNTY—Koch & Stephens, Houston, K. H. Root, 54, 1, L. Castielian sur, 350 ft from s and 94 ft from w line.

PECOS COUNTY — Culbertson Bros. Fort Worth, H. Monroe, 520, 12B, S 39, B 194, GC&SF sur, 1042 ft from n and 260 ft from w line.

RUSK COUNTY—H. L. Hunt, Tyler, G. Johnson, 31, 2, H. B. Dance sur, 330 ft from s and w lines. Max Rubin, Tulsa, Okla., D. Wells, 85, 2, W. P. Chisum sur, 450 ft se of No. 1. G. S. Anderson et al, Fort Worth, W. H. Fredericks, 20, 4, J. Ximinez sur, 225 ft from n and 175 ft from ne line. Mills Bennett Prod. Co., Houston, E. L. Pinkston, 108, 7, M. V. Pena sur, 424 ft from n and 330 ft from e line. Jno. F. Merrick, Fort Worth, N. Cooper, 20, 2, T. J. Moore sur, 150 ft from w and 215 ft from s line; 3, 150 ft from n and w lines. E. H. Moore, Tulsa, Okla., W. P. Moore, 20, 3, H. Wiggins sur, 721 ft w of No. 1. Jno. F. Merrick, Fort Worth, G. Thompson, 10, 2, Hobson, Wynn & Y'Barbo sur, 150 ft n of center of s line. J. R. Irion, Dallas, Fee, 24, 2, J. Womack sur, 330 ft from n and e lines. Navarro Oil Co., Houston, R. N. Brightwell, 113, 8, R. E. Wynn sur, 1102 ft from w and 150 ft from s line. Marr Drilling Co., Tyler, J. Rettig, 85, 1, J. H. Sparks sur, 330 ft from n and 1650 ft from e line. Humble Oil & Refg. Co., Houston, A. Wilson, 58, 3, Geo. Berry sur, 1287 ft from e and 471 ft from s line. L. R. Lindsey, 45, 3, J. M. Barton sur, 330 ft from s and w lines. Jno. Bell, 60, 5, S. P. Hollingsworth sur, 244 ft from n and 330 ft from e line. J. T. Roberson, 30, 4, T. Grace sur, ne corner. Gant & Garvin, Ardmore, Okla., Moore, 70, 1, M. V. Pena sur, 330 ft from n and w lines. Turman Oil Co., Tulsa, Okla., W. E. Brightwell, A, 32, 5, E. G. Sevier sur, 255 ft from w and 481 ft from s line. R. H. Dearing & Sons, Dallas, T. H. Goforth, 18, 1, Lindley & Thompson sur, 100 ft s of center of n line; 2, 183 ft n of center of s line. Lion Oil & Refg. Co., El Dorado, Ark., Wm. Jobe, 20, 4, J. Ximinez sur, 160 ft from s and e lines. Tex-Jersey Oil Corp., Tyler, Gaston School 1, 1, M. J. Pru sur, center. Florence Oil Co., Tyler, R. A. Motley, 25, 2, F. Cordova sur, 227 ft from n and 330 ft from w line. DeMontrond Oil Corp., Tyler, F. L. Pinkston, 24, 3, M. J. Pru sur, 330 ft e of center of w line. Falcon Oil Co., Fort Worth, A. K. Perkins, 77, 4, J. B. Cadena sur, 330 ft from w and 355 ft from s line. Lucey Pet. Corp., Dallas, B. F. Maxwell, 87, 5, E. Collard sur, 750 ft from w and 330 ft from s line. Bristol & Thompson, Fort Worth, London School, 3, 3, Cordova sur, 25 ft from n and 20 ft from w line. A. B. Stodart, Tyler, E. L. Pinkston, 20, 3, M. J. Pru sur, 330 ft n of center of s line. Mid-Kansas Oil & Gas Co., Shreveport, La., H. Clay, 130, 4, M. V. Pena sur, 575 ft e of No. 3. Amended location. M. A. Pride, 201, 1, J. B. Cadena sur, 78 ft from n and 102 ft from w line. Amended location. R. G. Mason, 104, 6, J. B. Cadena sur, 330 ft from w and 144 ft from s line. H. C. Burton, 254, 9, J. B. Cadena sur, 330 ft from n and w lines. P. Tipps, 23, 1, P. Tipps sur, 330 ft from n and w lines. M. M. Cross, 814, 36, J. B. Cadena sur, 1355 ft from w and 330 ft from n line. E. E. Moores, 201, 12, J. B. Cadena sur, 229 ft from w and 900 ft from s line. M. C. DeGuerin, 160, 5, J. B. Cadena sur, 330 ft from n and 229 ft from e line. H. C. Burton, 154, 10, W. D. Porter sur, 1297 ft from w and 1371 ft from s line. D. Ledbetter, 212, 5, W. H. Roan sur, 330 ft from n and 1460 ft from e line; 7, 330 ft from n and 2850 ft from e line; 8, 330 ft from n and 3715 ft from e line; 6, 330 ft from n and 2180 ft from e line. Mid-Kansas Oil & Gas Co., Shreveport, La., M. C. DeGuerin, 160, 6, J. B. Cadena, 1220 ft from e and 547 ft from s line; 7, 330 ft from n and 1640 ft from e line; 8, 330 ft from n and 2465 ft from e line. Sinclair Prairie Oil & Gas Co., Fort Worth, W. D Kinney, 579, 33, J. B. Cadena sur, 330 ft from s and 1231 ft from e line, blk. 33; 34, 330 ft from e and 990 ft from s line blk. 33. Stanolind Oil & Gas Co., Fort Worth, R. A. Moores, 251, 17, J. B. Cadena sur, 2430 ft from w and 330 ft from n line. R. G. Mason, 107, 6, J. B. Cadena sur, 350 ft from n and 330 ft from w line. Devonian Oil Co., Tyler, R. A. Motley, 442, 15, Wm. Killen sur, 1808 ft from n and 40 ft from w line. J. Alford, 99, 7, H. B. Dance sur, 1019 ft from w and 330 ft from s line. Gulf Prod. Co., Houston, W. Florence,

"The early bird gets the worm," at least that's what Oil Well and Tracy Word seem to believe about Conroe.

165, 11, J. S. Whiteman sur, 170 ft n of No. 4. Magnolia Pet. Co., Dallas, J. W. Flanagan, 36, 4, J. B. Cadena sur, 783 ft w of No. 1. Sun Oil Co., Dallas, R. J. Hendon, 120, 1, J. Ximinez sur, 330 ft from w and 1193 ft from n line.

REFUGIO COUNTY — T. P. Morgan, San Antonio, M. F. Lambert, 105, 2, lot 3-4, blk M. 993 ft from w and 150 ft from s line.

SAN JACINTO COUNTY—Geo. L. Pace, Dallas, Delta Land, 320, 1, blk. 3, H&TC sur, 680 ft from n and 706 ft from e line.

SMITH COUNTY—Amalgamated Oil Co. of Texas, Chicago, Ill., S. S. Cooke, 36, 4, Jas. Jordan sur, 332 ft from n and 170 ft from e line. K. S. Monroe, Jr., Tyler, J. R. Robinson, 142, 2, E. Daniel sur, 330 ft from e and 990 ft from s line. Mid-Kansas Oil & Gas Co., Shreveveport, La., J. H. Sharp, 482, 12, M. S. Coy sur, 1320 ft w of No. 6; 14, 826 ft w of No. 7; 13, 1652 ft w of No. 7; 11, 1650 ft from e and 1744 ft from s line; 9, 660 ft w of No. 6; 10, 660 ft w of No. 5. Sinclair Prairie Oil Co., Fort Worth, A. S. Jarvis, A, 266, 18, J. Vargas sur, 990 ft from w and 1056 ft from n line. Sun Oil Co., Dallas, O. W. Knight, 273, 11, D. Collins sur, 775 ft n of No. 9. Gulf Prod Co., Houston, H. Mayfield, 103, 7, Jas. Jordan sur, 150 ft from e and 330 ft from s line; 8, 330 ft e of center of w line; 9, north of No. 8.

STARR COUNTY — C. G. Echols, Keney, F. Doyno, 20, 1, Sh. 77A, Por. 81, 450 ft from n and 160 ft from w line w½ blk. 6.

STEPHENS COUNTY — Hanlon Gasoline Co., Breckenridge, C. E. Sikes, 85, 1, S 13, B 6, T&P sur, 1132 ft from n and 658 ft from w line.

UPSHUR COUNTY—H. K. Spears, Tyler, D. Bruner, 44, 1, M. Chandler sur, 330 ft from s and 990 ft from e line. Lester & Duffield, Fort Worth, L. Graves, 80, 1, M. Irwin sur, 330 ft from s and e lines. Simms Oil Co., Dallas, J. J. Flewellen, B, 374, 19, M. Mann sur, 400 ft from n and 2320 ft from w line; 18, 4980 ft from e and 415 ft from n line. Peckham Oil Co., Longview, T. Wells, 40, 4, G. W. Hooper sur, 600 ft ne of No. 3. Humble Oil & Refg. Co., Houston, J. K. Edwards, 71, 15, D. Ferguson sur, 250 ft from n and 330 ft from w line. M. Mattox, 62, 4, J. M. Pineda sur, 135 ft from nw and 540 ft from s line. Shell Pet. Corp., Dallas, C. C. Landers, 206, 12, G. W. Hooper sur, 330 ft from s and w lines. Magnolia Pet. Co., Dallas, L. Graves, 33, 3, M. Irwin sur, 330 ft e of center of w line. Cranfill-Reynolds Oil Co., Houston, L. Graves, 119, 2, M. Irwin sur, 330 ft from s and e lines; 1, 250 ft from n and 330 ft from e line. Sun Oil Co., Dallas, Jno. Hargraves, 200, 7, M. Mann sur, 480 ft from e and 884 ft from n line.

VAN ZANDT COUNTY—Pure Oil Co., Fort Worth, A. W. Ellison, 67, 5, J. Rose sur, 700 ft from e and 710 ft from s line.

WARD COUNTY — Rector Oil Co., Inc., Fort Worth, L. Munroe, 80, 1, S 62, B 33, H&TC sur, 660 ft from s and e lines. Eastland Oil Co., Fort Worth, M. Weiss, 10, 1B, S 4, B 34, H&TC sur, 330 ft from w and 278 ft from s line. S. J. Rixford, Grandfalls, P. M. Yell, 160, 1, S 8, B 34, H&TC sur, nw corner. J. C. Maxwell, Fort Worth, E. Brillhart, 80, 1, S 13, B 34, H&TC sur, 330 ft from n and w lines.

WEBB COUNTY — T. J. Murray, Laredo, (Zapata County), Newton Drilling Co., Laredo, A. Garcia, 640, 1, sec 52, 2340 ft from w and 2550 ft from s line. South Texas Oil Co., Laredo, B. Rosenburg, 640, 6, sec. 271, 849 ft from n and 450 ft from e line, blk. 10. French Oil Corp., Laredo, R. Benavides, 100, 1S, S 659, 450 ft from s and w lines. O. W. Killam, Laredo, B. L. Smith, 640, 1, S 1110, GWT&P sur, center of blk. 6.

WICHITA COUNTY—G. W. Cooper et al, Wichita Falls, J. L. Waggoner, 43, 2, S 8, B 8, GH&H sur, 210 ft from n and 200 ft from e line. R. R. Clark et al, Wichita Falls, W. P. Bickley, 400, 25, C&M sur, 2250 ft from n and 688 ft from e line.

ZAPATA COUNTY—Allied Oil & Gas Co., Laredo, E. Gutierrez, 532, 33, Sh. 4, Comitas sur, 867 ft from e and 1260 ft from s line. T. J. Murray, Laredo, L. Haynes, 1000, 2, Comitas sur, 7091 ft from n and 3000 ft from e line. Texas Co., Houston, Jennings, 9, C. Blanco sur, 512 ft ne of No. 8; 10, 512 ft ne of No. 9.

NORTH and WEST TEXAS

Gray County Production Extended;
Four Locations for Archer County;
New Shallow Pool in Southeast Archer.

H. H. KING, *Staff Representative, Fort Worth, Texas*

Gray County Production Extended Half Mile North

Pampa, Texas.—Nearly a half mile extension to the northeast portion of the Finley-Brown field, Gray County, was scored by Mazda Oil Corporation's (Julius Livingston) Coombs-Worley 2, which flowed 65 barrels high gravity oil per hour with an unusually large gas yield from granite wash formation at 2860-2975 feet. This well is located in the SEc NE Section 35, Block 3, I & G N Ry. survey, and on a 160-acre lease farmed out by Shell Petroleum Corporation. Sun Oil Company is starting a south offset, and Magnolia Petroleum Company has four sections in Fee lying to the east, with two natural offsets. Coombs-Worley 2 topped the big lime at 1932 feet and top granite wash at 2686 feet, with surface elevation of 2976 feet. A flow of 17½ million cubic feet of gas was killed by lubricating at 2590 feet, and cased off with 6⅝-inch pipe at 2730 feet. Gas flow estimated at 37,000,000 cubic feet was encountered at 2730-50 feet, and a large portion of this is accompanying the oil flow.

A revival of the wildcat leasing and drilling in Collingsworth County is now underway after a number of disappointing starts in the past, and the new interest is largely predicated on the favorable showing made by a wildcat drilled in the west central portion of the county. L. L. Dixon and Frank L. Downey et al's H. E. Bell 1, NW Section 102, Block 21, H&GN Ry. survey, developed oil in hole in June, 1931, at 2498-2503 feet. A series of mishaps halted work on the well, and it was later drilled to 2508 feet without oil increase, but swabbed from 15 to 20 barrels of 35.8 degree gravity oil daily. A. T. Kates of Kenilworth, Illinois, and others tried recently to re-condition the hole without success, and plugging orders have followed. The oil showing has indicated possibilities of an oil pool in the area. Magnolia Petroleum Company has acquired about 4,000 acres of scattered leases to the east, west and south of the semi-producer, but is delaying drilling. Options have been taken on additional tracts recently. All being written on 10-year term, with 50 cents annual rental.

A. T. Kates et al have a large wildcat block in the southeast corner of Collingsworth County, with contract to drill a 3000-foot test. Surface pipe has been cemented on R. G. Hickman 1, located at center of NE Section 43, Block 10, H&GN Ry survey. Frank L. Downey et al have acquired a block in central portion of the county, straddling the North Fork of the Red River. Materials have been moved in to drill J. Beasley-Bradley 1, located in SEc SW SE Section 95, Block 15, H&GN Ry. survey, or about seven miles northeast of the junked producer.

Tighten Proration Ruling In Gray County

Pampa, Texas.—Exemptions from proration restrictions enjoyed by a number of property owners in Gray County section of the Panhandle have been ordered cancelled in a special ruling made by the Texas Railroad Commission July 26 as result of a special hearing held here July 16. A number of leases adjacent to properties of Danciger Oil & Refining Company and Sunray Oil Company, both being immune from proration during appeal period on suit filed in state court to enjoin the commission's proration order dated August 14, 1930, have been allowed to disregard production restrictions in order to equalize drainage. This practice has permitted a comparatively few wells to usurp a large portion of the limited market outlet. Under the new ruling only direct offsets to wells of the above companies will be exempted from proration.

Four Tests Authorized in Archer County Area

Wichita Falls, Texas.—Deep Oil Development Company is to drill an offset to the single deep oil producer in Wichita County with one of four tests authorized last week. Two of the new locations were made to cover offsets to Canyon lime producers at the 2200-foot level in the Chalk Hill field, Archer County, and the fourth is to be an offset to a shallow wildcat producer in central Archer County.

Rotary contract is to be awarded for the drilling of the Wichita County test to 4000-feet, and it will be an offset

to the company's Munger 1, which scored first Strawn sand production in Wichita County in April, 1931, after shot of 500 quarts at 3675-3942 feet, with a total depth of 5430 feet. A 100 barrel flowing well resulted from this search for deep production in the K-M-A field. L. F. Wilson 1, lease 18, and L. F. Wilson 1, lease 5-B, are to be drilled as offsets to recent completions on the northwest portion of the Chalk Hill field. Deep Oil Development Company's Frank Jehlik 1 is to be a northwest offset to A. Z. Kouri et al's C. A. Montgomery 1, which opened a shallow pool one and one-half miles northwest of Archer City in June, pumping 25 barrels oil at 1120-24 feet. Kouri et al are contracted to make a 2300-foot, or Canyon lime, test on this drilling block, and are at work on Montgomery 2 to comply with the obligation.

Open New Shallow Oil Pool In Southeast Archer

Wichita Falls, Texas.—The southeast corner of Archer County has added a new shallow oil pool through the wildcat efforts of C. C. Williams and associates on the J. S. Matlock land with an estimated initial of 15 barrels daily from sand at 639-645 feet. The discoverers have made location for a second test to be drilled 600 feet south of the producer, which is located near the center of the east line of Section 25, J. Saunders survey, abstract 645, and about midway between the Prideaux and the recently uncovered Webb-Pruett pool.

North and West Texas Field Developments

TEXAS PANHANDLE

Completions

CARSON COUNTY—		
Texoma Nat'l Gas Co., A. J. Dauer-Gulf 1-G	¶33	2455
GRAY COUNTY—		
Mazda Oil Corp., Coombs-Worley 2	¶17-1500	2975

SOUTH TEXAS

Completions

ARCHER COUNTY—		
Bobby Burns & C. B. Long, Wilson-Gulf 1-T	175	2233
W. B. Omohundro et al, Turbeville 4-A	*	1501
MONTAGUE COUNTY—		
Bridwell Oil Co., Gist 1	200	1257
WICHITA COUNTY—		
Walter D. Cline et al, Brooks 1	*	1361
Geo. Cooper et al, Waggoner 1	15	1381
Schlaffke & Blair, Dutton 1	*	725
WILBARGER COUNTY—		
Fain-McGaha Oil Corp., Waggoner 22-L	*	2334
YOUNG COUNTY—		
Walter D. Cline et al, Burris 1, Sec. 1365	*	803
Henry Craig et al, Davis 1, Sec. 1395	15	864
King Royalty Co., Bailey 3, Sec. 165	15	881
B. L. Mollenkopf et al, Watson 1, Sec. 230	*	700
D. J. Scholl et al, Garvey 1, Sec. 1858	*	905

SOUTH TEXAS

Action Looked for in Bee County; Significant Output From Government Wells Area; Carolina-Texas Extended.

EARL POST, *Staff Representative, San Antonio*

Small Drilling Boom in Prospect for Bee County

San Antonio, Texas.—Three rigs are being moved in and a fourth location is being made in the new Tuleta district, three miles southeast of Pettus in Bee County. They indicate an extensive drilling campaign on small blocks held by a number of independent operators.

C. F. Nichols brought in J. P. Harris 1, Section 2, Durango Grant, July 21, from 4087-98 feet, flowing about 450 barrels on small choke. The well's production has been sold to the Atlantic Oil Producing Company, which has extended a line from Pettus, from which point it is running oil through the Humble Pipe Line Company's line to loading racks at Port Aransas.

The first well definitely announced after the discovery was Coquat and Hahn's Allen 1, 150 feet from the north and west line of the northeast quarter of Section 13, on a 10-acre tract several locations south of the producer. Rigs also are being moved in by The Texas Company and by John Neil et al for tests. Nichols, C. R. & M. Drilling Company and H. H. Weinert, joint owners of the discovery well, also are reported to have made a location.

Government Wells Line Runs Show Importance

San Antonio, Texas.—That the new producing districts of northern Duval County will play an important factor in the ultimate oil recovery from the Mirando district is evidenced by the June pipe line run report. Government Wells, including the new North Government Wells area, lead all fields in the territory with 173,446 barrels from 62 producing wells. With only the wells, Sarnosa, just south of this field, showed 21,638 barrels for the month to be in fifth place.

This section of Duval County is producing under a proration order of 200 barrels per well and a gas waste not to exceed 1250 cubic feet per barrel. The proration will prolong the heavy recovery from the field. An extensive drilling campaign, however, should bring the Sarnosa and Government Wells areas well above the 10,000-barrel a day mark in the near future.

The district has run more than 34,000,000 barrels of oil since its discovery 10 years ago. The Mirando district report, which includes Webb, Jim Hogg, Duval, Starr and Zapata Counties, shows the district to have 980 producing oil wells making an average of 15,513.95 barrels a day during June, or 16.6 barrels per well. The month's total runs amounted to 484,978.81 barrels.

Los Olmos and Rio Grande City fields, recently opened in Starr County, ran 22,815 barrels during the month and the Roma field, also in Starr County, ran 5,952.73 barrels during the month.

Two Wildcat Campaigns In Northern Mexico

McAllen, Texas.—Northern Mexico wildcatting attracted attention during the last several days as a result of announcement of two new prospects, one of which followed a large lease deal.

The Ohio-Mexico Oil Company, which already owns considerable acreage in the State of Tamaulipas, Mexico, across the border from the Rio Grande Valley, took over approximately 20,000 acres, known as the La Mission block, a short distance from Camargo, Tamps., Mexico, across the border from Rio Grande City. The purchase was a portion of 110,000 acres held under a drilling concession by a group of Valley business men and later sold to a Pennsylvania organization. While the exact details of the deal were not revealed, it is known that $50,000 was paid in cash with $450,000 to be forthcoming from oil and gas, together with a drilling obligation.

The first location will be between five and six kilometers west of Camargo. Drilling is to commence in the near future.

Duncan B. McMillan and associates are continuing their drilling campaign on the Santa Monica block, South Aldamas anticline, State of Nuevo Leon, bordering the north bank of the Pesqueria river. The well is Santa Monica 6, and is between the towns of China and Aldamas. It is 200 meters from Santa Monica 1, which had a fair showing of oil around 1800 feet. Santa Monica 5, which is about one kilometer southeast of Santa Monica 6, was abandoned as a dry hole. The other three wells were located, but have not been drilled to date. The newest well will be

drilled with a spudder, although the other operations were by rotary.

Compania de Petroleo Mercedes, S. A., has abandoned Chancaca 1, several miles southwest of Nuevo Laredo, as a dry hole at approximately 3500 feet. It is on Hacienda Chancaca.

Carolina-Texas Extension Gets Second Good Well

San Antonio, Texas.—South Texas Oil Company (Rosenberg) have scored another good completion in the recently discovered south extension to the Carolina-Texas field, Webb County. The new well, Rosenberg 3 (Laurel) flowed 250 barrels of 50 gravity oil by heads through the 6⅝-inch casing. Sand is recorded from 2237-43 feet. A fourth well is being spudded on the same block, which is Block 10, Survey 271. The new producer is 600 feet south of Rosenberg 2, discovery well.

Atlantic Continues Deep San Patricio Drilling

San Antonio, Texas.—Atlantic Oil Producing Company is continuing its deep drilling campaign in the Aransas gas field of San Patricio County. Welder 4, which is located 1900 feet south and 300 feet east of Welder 3, abandoned below 6000 feet, is drilling at 5555 feet. It recorded several sands at shallower depths, but none of them proved productive.

Also in this county, Stanolind Oil & Gas Company and John F. Camp are drilling Bennett 1 at 3991 feet in hard dry sand. The well is 1320 feet out of the southeast corner of Section 8, Bennett lands, George D. Paul subdivision.

Magnolia Completes Large Government Producer

San Antonio, Texas.—Magnolia Petroleum Company's J. T. Johnson 2, Section 44, Duval County, in the New North Government Wells field has been completed at 2326-35 feet as the largest producer in the field. It gauged 960 barrels on small choke, but is estimated as being good for fully 3500 barrels on open flow.

The well is 300 feet north of Johnson 1 and the same distance east of the same company's Wendt 1, both producers. It is a northeast offset to the San Diego Oil Company's L. Bennett 1, discovery well. The action of the well indicates possibilities of big production.

Drilling continues unabated with more than a score of rigs running throughout the northern portion of the county, including the North field, regular Government Wells field and the Sarnosa field to the south.

Wells Due in Crevice Area Dunlap Section at Luling

San Antonio, Texas.—Several more wells encountered breaks in the Austin chalk in the Dunlap area, near Luling, Caldwell County, and are preparing to complete. Although several dry holes have been drilled and two successful completions made, operators continue their search for crevices.

Hadley and Buchanan's M. C. Nugent, 950 feet south of the Empire producer, topped the Austin chalk at 2156 feet, cored several feet of broken formation showing oil, and is setting casing. Owens and Gunby got a break of shale at 2114-22 feet, topped the chalk at 2142 feet and set casing at 1923 feet. Townes and Porter's Dunlap 1, after shooting in a saturated break from 2105-45 feet, are cleaning out to complete. All of these wells are showing for fair producers.

Interest still centers around Bobrose Oil & Refining Company's Walker 1-B, one mile northeast of the field, which is reported to be standing full of oil at 2460 feet. A bridge formed at 1950 feet and part of the cable tools were lost in the hole when an attempt was made to drill out. A fishing job is now under way.

San Antonio office of THE OIL WEEKLY has been moved from the Bedell Building to 1019 Milam Building. The telephone remains Crockett 2970. The office is in charge of Earl S. Post, South Texas staff representative.

South Texas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BEE COUNTY—		
Houston Oil Co., M. A. Newman 4, Kerr sur	41	3688
BEXAR COUNTY—		
Amerada Pet. Corp., Kiolbassa 1, 4 mi se St. Hedwig	*	2110
Chiquita Oil Co., Hunter 2, Sec. 14, Martinez sur, Cooksey pool	15	1559
DUVAL COUNTY—		
Mag. Pet. Co., J. T. Johnson 2, Sec. 44, N. Gov't Wells	1250	2335
GOLIAD COUNTY—		
Humble O&R Co., M. Fromme 1, G. W. Kersey sur	*	5245
STARR COUNTY—		
C. G. Echols, Doyno 1, blk 6, share 77-A, Por. 81	*	1480
Hooks & Weaver, Kelsey Bass 8, Sec. 6, Por. 75-76-77, Los Olmos pool	20	490
Los Olmos O&G Co., Kelsey Bass 22, Sec. 7, Por. 75-76-77	35	435
Kelsey Bass 24, Sec. 6, Por. 75-76-77	25	460
Traylor et al, La Borde 1, lot 7, share 77-A, Por. 81	*	1470
WEBB COUNTY—		
South Texas Oil Co., Rosenberg 3, blk 10, sur 271, Carolina-Texas	250	2250

Wildcat Drilling Report

(Wells shut down not included)

BEE COUNTY—Coquat et al, Allen 1, nw¼ Sec. 13, Tuleta, ru. Gulf Coast Oil Co., Hicks 5, Normanna, ru. Howeth, O'Neill et al, King Ranch Estate 1, 7 mi ne Beeville, ru. C. F. Nichols, Kimball 1, Stephen Winship sur, Grayburg, set surf cas, re-dr.

BEXAR COUNTY — American Gas Co., Kennon 5, M. F. Rodriguez sur No. 4, Gas Ridge, set cas 2375 ft to cut off water. Alamo Nat'l Gas Co., Coreth 1, Menchaca sur, Echert area, testing abt 1050 ft; Gembler 4, Menchaca sur, Echert area, set cas 690 ft. Wm. V. Ballard, et al, S. A. Land and Dev. Co. 1-A, Perez sur, move on rotary 970 ft. E. M. Carl et al, F. Gembler 1, J. Montez sur, move on to re-dr 482 ft. Chiquita Oil Co., Pieniazek 3, Martinnez & Arocha sur, Cooksey area, sand 1467-69 ft, set liner. C. J. Webster O&G Co., S. A. Irrigated Farms 1, lot 2, blk 49, near Medina, dr below 600 ft.

BROOKS COUNTY — Allen and Morris, Holbein-Wormser 2, Palo Blanco de Maguellos Grant, Alta Mesa, to sp. Ed East et al, R. Garza 1, Alta Mesa, dr 1500 ft. Otto Woods et al, Matilda Martinez 1, Longoria League, 25 mi sw Falfurrias, reaming 1406 ft.

CALDWELL COUNTY—Bobrose O&R Co., Inc., Walker 1, S. Seal sur, Dunlap area, dr out bridge 1950 ft, td 2460 ft. Dickson & McDowell et al, G. C. Walker 1, S. Seal sur, dr 2315 ft Del Rio. Hadley et al, M. C. Nugent, Seal sur, sd 2070 ft. Hickman et al, Dickerson 1, Salt Flat area, taken over from Storey to drill. Owens and Gunby, Dunlap 1, S. Seal sur, shale break 2114-22 ft, show oil, top chalk 2142 ft, set cas 2000 ft, woc. D. H. Plachard Oil Prop., Inc., Ogletree 1, Robt. Smith, 1780, ft, to deepen. C. J. Webster O&G Co., C. T. Robertson 1, ½ mi sw McCrory prod., John Neil sur, dk.

COLORADO COUNTY — V. F. Neuhaus Drlg. Co., M. C. Barnett 1, sub of O. K. Winn sur, sd 4326 ft for orders. Shell Pet. Corp. et al, Rudolph Matuska 1, Joshua Henneke sur, ru.

DE WITT COUNTY—Richardson & Mid-States O&G Co., Taylor 1, A. Albrete sur, dr 2300 ft.

DIMMIT COUNTY — Motes-Campbell Co., Denton 1, tracts 33-34, Sec. 60, Denton Colony Sub, 13 mi sw Carrizo Springs, sp.

DUVAL COUNTY—A. A. Brodbeck, Brodbeck 1, Sec. 44, N. Gov't Wells, dk. Buchanan and Terrell, Hagist 1, sur 267, ru; B. T. Ellison 2, sur 44, sp. John F. Camp, Weil 2, Sec. 570, dk. L. W. Capp & C. L. Smith, Duval County Ranch Co. 2, sur 576, Sarnosa, td 2350 ft, flowing by heads, trying to complete; Duval County Ranch Co. 3, sur 576, cas set 2335 ft, to dr in; Duval County Ranch Co. 2-A, sur 574, lcn. Clark & Cowden, Sutherland 1, sur 3, dr 2310 ft. H. H. Coffield 2, sur 43, N. Gov't Wells, lcn. Cole Pet. Co., Benavides 76, blk 18, sur 19, 1753 ft, completing. De Lange & Frates, Sevier 1, sur 213, 15 mi e Gov't Wells, move on. Frank Gravis, Schallert 1, sur 255, Palangana Salt Dome, dr 400 ft. Humble O&R Co., Paul White 4, Sec. 58, Gov't Wells, set cas top sand 2283 ft, woc. Edwin M. Jones, J. F. Williams 1, sur 131, Sarnosa, dk. McGinley Corp., J. A. Lundell 1, sec 48, N. Gov't Wells, ru. Harry E. Oliver, Woods and Welder 1, sur 213, lcn. Payne & Vernon A. Roach 1, sur 457, lcn. Pet Finance Corp., C. W. Hahl 1, sec 46, N. Gov't Wells, no rept. George Parr, Benavides Independent School District, sur 44, lcn. Plymouth Oil Co., Parr 1, blk 48, Parr Ranch sub, dr 4485 ft. Sandiego Oil Corp., Riley 1, sur 46, sp; L. Bennett 2, sur 44, ru. Seacord, Putnam, Mins & Evans, J. W. Johnson 2, sur 44, top sand 2289 ft, td 2305 ft, set cas, woc. The

Texas Co., C. W. Freer 1, sur 45, ru; W. C. Riggs 1, D. Seago sur, sec 46. dr in abt 2300 ft; Ruiz 2, sec 127, C&M sur, Sarnosa, to sp; R. L. Brown 1, sur 574, Sarnosa, lcn. Thomas & Tarver, Duval Co. Ranch Co., sec 576, prep to sp. Whisenant, Trenchard & French Oil Corp., Hahl 1, sur 44, dr below 500 ft. Windsor Oil Corp., L. L. Cummings 2, sur 44, lcn.

GOLIAD COUNTY—Benedum & Trees & Plymouth Oil Co., Parks 2, BS&F sur No. 8, dr 5240 ft.

GUADALUPE COUNTY—E. C. Brogan, F. A. Pfullman 1, L. Billings sur, Sal-Mar area, dr 1800 ft. Humble O&R Co., D. J. Denman 5, Wm. Arrington sur, Darst Creek, set cas 2525 ft, prep to dr in. R. R. Ogden, Zunker 1, L. Ballenger sur, Sal-Mar, lcn.

KARNES COUNTY—Howeth et al, Pargman 1, Victor Blanco sur, to sp.

KFRR COUNTY—Eastland Oil Co., Jeff Love 1-B, Sec. 1594, Love Ranch, dr 2325 ft.

LEE COUNTY — Paton Bros., Turner 1, David Hudson sur, dr 5270 ft, hard Taylor.

McMULLEN COUNTY—Jacob, Buzzini & Pickett, Inc., J. Jacob 5-A, sec 8, W. H. Jacob sur, lcn. V. G. Schimmel, Two Rivers Ranch Co., sec 59, dr 1225 ft.

NUECES COUNTY — Gulf Coast Oil Co., Frank Bliss, sec 406, Saxet, dr 1306 ft; Perkins & LeGasse 2, sec 26, Sheppard Farms sub, Saxet, dk. McCarthy, Rogers, Nix et al, Isencee 1, blk 12, Sheppard Farm lots sub, ru. Oso Drillers, Inc., N. J. Roark 2, E. Villareal sur, Saxet, dk. Saxet Gas Co., W. W. Walton 2, Saxet, sand 3418-33 ft, 50 lbs. pressure dst 1 min, dry gas.

REFUGIO COUNTY—Gulf Prod. Co., J. O'Conner 2, CEPT&M sur, No. 40, dr 3902 ft. Houston Oil Co., F. Rooke 2, wo, T. McMillen sur, Refugio, sand 3698-3710 ft, in process of completion. Edwin M. Jones, J. Mitchell 1-B, Refugio town lots, td 9131 ft, plugged back several feet to test. Humble O&R Co., M. V. O'Conner 1, J. Keathing sur, attempting to test sand 5835-41 ft; M. V. O'Conner 2, J. Keathing sur, td 5765 ft.

SAN PATRICIO COUNTY — Atlantic Oil Prod. Co., Welder 4, Welder area, dr 5550 ft. Stanolind O&G Co. & John F. Camp, Bennett 1, G. D. Paul sub sec, 8, J. J. Welder sub, dr sand 3815 ft.

STARR COUNTY — V. V. Combs, Kelsey Bass 1, sec 6, Por. 75-76-77, prep to sp. E. O. Conner, Goodrich 1, lot 5, tract 5, Por. 81, sp. Frank Doyno, Seabury, Geo. & Taylor 1, share 5, Por. 75, lcn. C. G. Echols, Share 77-A, Por. 81, blk 6, dr 510 ft. J. P. Moore & C. B. Van Matre, Seabury, George & Taylor 1, share 5, Por. 75, prep to sp. E. H. Melton et al, Lopez 1, share 65, Por. 80-81, dr 400 ft. Edgar Swift, Doyno 2, blk 8, share 77-A, Por. 81, dk. Tarver & Nance, Seabury-Raylor 1, blk 21, Por. 79, coring abt 2250 ft. Traylor et al, La Borde 1, lot 6, tract 5, Por. 81, dr 1460 ft.

VICTORIA COUNTY — Cullen & West, Keeran 1, M. de Leon sur, dr 6168 ft. Houston Oil Co., McFadden 1-A, IRR No. 20 sur, sidetrack 3478 ft, td 5792 ft. Humble O&R Co., Peter Rydolph 1, McFadden area, Kemper sur, dr 2900 ft, tested 700 ft sw on dst 2672-82 ft. The Texas Co., McFadden 3 (wo), J. M. Rine sur, td 5832 ft, to wo. Union Oil Co., Keeran 1, M. de Leon sur, Keeran area, dr 4983 ft. Victoria Oil Co., G. Keeran 2, M. de Leon sur, dr 5993 ft.

WEBB COUNTY — French Oil Corp., R. Benavides 13, sur 659, dk. O. W. Killam, Smith 1, sur 1100, blk 6, sand 1478-83 ft, show oil, set cas. Montex Oil Co., Vela 1, blk 4, sur 267, ru. Norden & Morris, Gates-Kirkpatrick 2, Sec. 19, blk 5, sp. Newton Drlg. Co., A. Garcia 1, sur 52, no rept. So-Tex Oil Co., Rosenberg 4, blk 10, sur 271, move on.

ZAPATA COUNTY—Allied O&G Co. & Allen & Morris, Gutierrez 33, share 4, Fansler Partition, dr 1000 ft. Blankenship & Hill Montemayor 1, blk 6, sur 64, ru. F. M. Blair & Son, Montemayor 1, share 63, blk 1, coring 1642 ft. Joe Cullinan, Gutierrez 1, Charco de la India Grant, dr abt 1500 ft. T. J. Murray, Haynes 2, Las Comitas Grant, dr 770 ft. F. J. Searight, F. Mounz 1, Por. 18, Blk 81-82, sp. The Texas Co., Measles 10, Cerrito Blanco Grant, ru. Windsor Oil Co., J. M. Martinez 1, blk 15, W. R. Duke sub, dr 585 ft.

GULF COASTAL FIELDS

Watch Conroe Next Week; Barbers Hill and Rabb Ridge Active; Humble Goes After Galveston County Production.

WM. V. GROSS, *Staff Representative, Houston, Texas*

Conroe Extensions Loom With Six Wells on Sand

Houston.—Things will be popping in the flush Conroe field of Montgomery County during the week ending August 6.

July 29 six wells were in the 5100-foot sand waiting initial production tests and behavior of these six is expected to reveal a great deal concerning underground conditions at Conroe, of which not a great deal is known.

Provided pipe line connections can be made by then, the field may be producing in excess of 2500 barrels per day by August 6, notwithstanding Humble Pipe Line Company's statement that it will not accept more than 400 barrels per day from a well at Conroe. The potential production of the wells now on the sand probably will be far greater than 2500 barrels, judging from the calibre the few producers completed there.

Another revelation of the week at Conroe, and one which tends to place the field as a major exploitation prospect, is discovery of three sands in Humble Oil and Refining Company's Dobbins 1 at depths much shallower than the present producing horizon. Dobbins 1, located in the Ransom House Survey, in the region George Bevier claims is underlain by a salt dome, is reported to have cored gummy sands of good oil saturation at 1720-62 feet and at 2380-94 feet. In addition, the well cored another sand at 2785-93 feet July 29 which showed gas. In event the 5100-foot horizon turns out to be non-productive in this sector of the field, it is likely the shallow sands will be tested for production. The oil scouts apparently have been justified in being "suspicious" about the Dobbins well, for three weeks or more ago they said, "Watch the Humble well on the Dobbins for the real low-down," and then began camping on the location.

In the event Dobbins 1, located about two miles southeast of the discovery well, makes a favorable showing when the Yegua is encountered, drilling may be precipitated in the Charles B. Stewart, Wilson Strickland, Lemuel Smith, and surveys situated so as to fall within the imaginary salt dome outline generated from the well.

Herman Heep seems to have called the northeast limit of oil production pretty well this week with C. Brent 1 in the D. W. Collins Survey. The well was drilled down to 5254 feet, from 5108 to 5254 being non-productive formation. Seven-inch casing has been set at 4970 feet to test a sand at 5100-02 feet again. This sand, according to field reports, shows symptoms of being saturated with salt water.

It appears evident that Alpha Petroleum Corporation has a commercial producer in South Texas Development Company 1 as the well has flowed oil into the pit for 24 hours with a 625 pound pressure on the half-inch choke. Seven-inch casing was set at 5130 feet. With a total depth of 5158 feet, the operators set 31 feet 9 inches of 4¾-inch screen and 56 feet 10 inches of blank; 2½-inch tubing was run to 5131 feet. This completion tends to round out a rough arc drawn through Heep Oil Corporation's Hamman 1, Strake Oil Corporation's South Texas Development Company 1 and 2, the Alpha well, Heep's Cartwright 1 and Freeman 1. While no official gauge had been taken on the well Friday morning, 625 pounds pressure on a half-inch choke should render it capable of producing the 400 barrels set by the only purchaser of crude in the fields as the maximum amount of oil it would take from any well.

Were it not for the rather weak showing made on a drill stem test this week, Alpha's South Texas Development Company would make chances of Rowe & Flowers' Mrs. M. H. Alexander 1 look better. This latter test, an attempt to extend the western end of the field about a mile north of northwest, tested 10 fourbles of oil and seven of salt water in 21 minutes at 5119 feet. Two attempts at drill stem tests at 5108 feet were not encouraging, and it may be that the northern limit of production on the present western end of the field will be somewhat between the

Alpha well and the test on Mrs. Alexander's property.

There are two very good possibilities that a slight westerly extension to the productive limits of Conroe will be accomplished during the coming week. Gulf Coast Drilling and Production Company's South Texas Development Company 1, formerly a Plummer & McDaniels well, has set casing on top of formation showing oil cored at 5119-32 feet and an oil sand cored at 5132-49 feet. This test, located in the southeast corner of a 60-acre tract in the Theodore Slade Survey, would constitute less than a quarter-mile westerly extension.

The other test, considered likely to bring about a three-quarter-mile southwesterly extension, is Heep Oil Corporation's Hamman 1, which is rigging up the Christmas Tree after having set seven-inch casing at 5099 feet. The well, which has a total depth of 5129 feet, cored good oil sand from 5108 to bottom.

The status of other drilling wells in the Conroe area July 29 was as follows: Craft & Gieseke's South Texas Development Company 1, shut down for orders in black shale at 4996 feet; Hamilton, Hill and Hill's Gilbert 1, drilling at 2105 feet; Heep Oil Corporation's Cartwright 2, in oil sand at 5127-46 feet, with sand and shale showing oil from 5121 to 27 feet; Heep and Steinberger's Steinberger 1, drilling in shale at 4155 feet. Humble Oil & Refining Company's R. L. Cartwright 1, rigging up; Humble's South Texas Development Company 4, drilling near 2000 feet; Lilley & Red Moon Oil Company's McDonald 1, rigging up; Moore & Bruton's Hooper 1, drilling at 2110 feet; Rowe & Flowers' Varner Realty Company 1, drilling at 5010 feet; G. W. Strake's South Texas Development Company 3, drilling in new hole at 3135 feet after having gone originally to 5111 feet.

In addition to Alpha Petroleum Corporation's well, Heep Oil Corporation worked over Cartwright 1 this week for an initial production of 1190 barrels at 5186 feet. The well is producing on a three-eighths-inch choke.

Barbers Hill Expected to Maintain Rate of Output

Houston.—Ten wells drilling in the proven area of Barbers Hill field indicate that area will not suffer appreciable loss of oil recovered daily during the next two months at least.

Of the drilling wells, Mills Bennett Production Company's Kirby 3, an east flank test, is reaming to bottom after having drilled a plug at 4409 feet. Kirby 3 had a showing of oil at 4383 feet. Texas Gulf Producing Company's Cornelia Barber 2, another east flank test, is preparing to run seven-inch casing after coring a sand showing oil at 4309 feet. Barring accidents, both wells should be completed before August 15.

Rabb Ridge to Remain Active Through Summer

Houston.—That continued activity in development of production at Rabb Ridge field, Fort Bend County, may be expected for the next two months, was made evident during the week by an 1800-foot north extension in The Texas Company's Wolters 1 and announcement of two new locations by Gulf Production Company and Humble Oil & Refining Company, joint operators of the majority of acreage considered potentially productive.

New locations for the field are: Humble and Gulf's T. R. Booth 3, moving in rig; George 5, location; and George B-2, location.

Week's completions at Rabb Ridge were: The Texas Company's Wolters 1, completed for 1500 barrels at 5322 feet; and Humble and Gulf's J. H. P. Davis 2, completed at 5365 feet for an initial production estimated at 240 barrels.

Humble and Gulf's Lockwood 4, which caught on fire last week when a core was pulled from 4500 feet, cratered enough to swallow the rig and derrick, and then caved in, extinguishing the fire which had burned for several days.

Humble to Drill Test In Galveston County

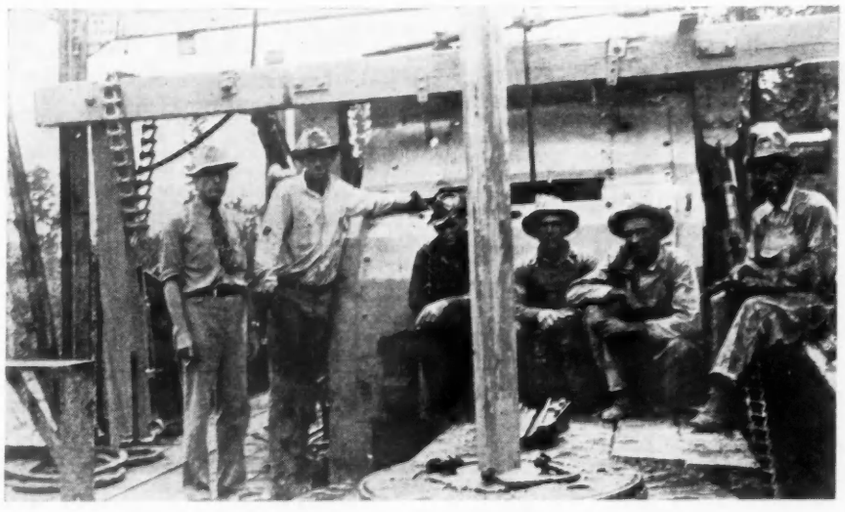
Houston.—Although all commercial oil production in Galveston County comes from operations of Yount-Lee Oil Company, Humble Oil & Refining Company will attempt to develop some production there this fall.

Location was announced this week for Humble's Elias V. Rosenkranz 1, a wildcat project to be drilled 6380 feet from the northeast corner along the north line of the Sarah White Survey and thence 3950 feet south at right angles, in a 200-acre tract.

That Yount-Lee Oil Company contemplates considerable activity in its High Island field during the next few weeks is seen in announcement this week of three locations, one of which already is rigging up.

Initial production from two completions at High Island this week totaled 1620 barrels: Yount-Lee's Cade 28 was completed for 720 barrels at 6275 feet; Cade 29 was completed for 900 barrels at 5275 feet. Completion of these wells leaves two active drilling wells at High Island.

Houston.—The J. O. B. Young land, three miles northeast of Port Arthur in Jefferson County will be tested for oil soon by Coast Oil & Gas Company which is rigging up on Young 1, which is located 250 feet west of the east line and 160 feet north of the south line of a 40 acre tract in Block F-5, Lot 6, Joseph Grigsby Survey.



Pat Rutherford, drilling contractor of Southwest Texas fame, has one of the neatest and most beautifully maintained rigs operating at Conroe. Pat, at left, is drilling the Alpha Petroleum Corporation's South Texas Development Company 1, now showing for a producer.

Houston. — Heep Oil Corporation this week disposed of 36 acres in leases and three producing wells in the East Texas field to Viersen and Cochran of Okmulgee, Oklahoma, for a consideration which was part cash and part oil.

Houston. — Cursory examination of drilling reports for Texas and Louisiana Gulf Coasts last week showed fields in the areas were being subjected to considerable reconditioning of old wells and that projected drilling of new locations on fully proven leases was widespread.

Texas Gulf Coast Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BURLESON COUNTY—		
Sansom Oil & Gas Co., Dockworth & Gilley 1, P. Singleton sur.....	*	2648
HARRIS COUNTY—		
Suema Oil Corp., Wilson & Hunt 1, Elena Farms, W. Ritchie sur....	*	1875
HIGH ISLAND FIELD—		
Yount Lee Oil Co., Cade 28.....	720	5615
Cade 29	900	5275
HULL FIELD—		
Republic Prod. Co., Dolbear 146....	100	2507
HUMBLE FIELD—		
Sun Oil Co., River 54.....	25	1430
PORT NECHES FIELD—		
The Texas Co., W. H. Starck 3....	800	3489
RABB RIDGE FIELD—		
The Texas Co., Wolters 1, Samuel Kennedy sur 1000		5322
Humble Oil & Ref. Co. & Gulf Prod. Co., Lockwood 4	†	4500
WEST COLUMBIA FIELD—		
Hogg et al, Hogg 1.....	*	3650
ORCHARD FIELD—		
Gulf Prod. Co., Moore 33.....1000		2250

Wildcat Drilling Report

(Wells shut down not included)

AUSTIN COUNTY — Great Southern Dr. Co., Schovajsa 1, S. F. Austin 4 lgs. sur, dr hd shale 2610 ft. Grant et al, A. A. Chesley 1, Raccoon Bend, dr shale 2410 ft.

BRAZORIA COUNTY—W. D. Southerland et al, C. W. Chapman 1, Lochridge, dr shale 3675 ft. The Texas Co., Belcher 3, Manvel, dr gbo and lime 2576 ft, set 13⅜-in cas at 1310 ft.

BURLESON COUNTY—Shilo Oil Co., Bracey 1, Somerville, dr shale 1350 ft.

CHAMBERS COUNTY — (Barbers Hill)— Mills Bennett, Barber A-4, dr hd sndy lime at 4713 ft; Kirby 3, td 4409 ft, drlg plug, r to bot, shwg oil at 4383 ft. Rio Bravo Oil Co., A. N. Fisher 3, dr salt 5360, top salt 4977 ft. Sun Oil Co., Anne Higgins 3, dr rk 1315 ft. The Texas Co., Wilburn 7, (ow) old td 4424 ft, ru to dpn. Texas Gulf Prod. Co., Kirby H-10, r to set cas at 3064 ft; Cornelia Barber 2, td 4309 ft in sn shwg oil, prep to run cas; Kirby H-11, dr salt 2165 ft; Kirby C-3, ru; Kirby A-11, lcn on nw flank of dome.

FORD BEND COUNTY—Humble & Gulf, H. P. Lockwood 4, caught on fire at Rabb Ridge 7-20-32, caved in and extinguished itself, hole abn; Lockwood & Sharp B-3, Rabb Ridge, dr sn and shale 3300 ft; Lockwood & Sharp 4-A, in sn shwg oil 5092 ft; Lockwood & Sharp 6-A, dr 4920 shale; Lockwood & Sharp A-7, dr 1800 ft; J. H. P. Davis 2, Rabb Ridge woc with 7-in at 5303 ft; T. R. Booth 3, Rabb Ridge, lcn; Booth A-2, dr second hole at 1788 ft. Naylor & DeCosta, Naylor 1, Chrisman sur, dr shale 4208 ft. North Star Petroleum Co., Guyler 1, lcn 330 ft each way out of swc of Guyler 100-ac tract, Andrew Roberts sur, Stone & Wyman, Beard 1, wo at 1645 ft.

GALVESTON COUNTY — Humble Oil & Ref. Co., Elias V. Rosenkranz 1, lcn 6380 ft w from nec along n line of sur and 3950 ft s at rt angles, in 200-ac tr in Sarah White sur. Yount Lee Oil Co., Broussard & Orme 2, High Island, dr 4990 ft; Cade 30, High Island, lcn 300 ft n and e No. 28; Cade 31, lcn midway between No. 21 and No. 29; Smith 12, High Island, lcn 690 ft sw of ne line of tract and 1750 ft nw of se line of Martin Dunman sur; M. M. Spencer 2, High Island, dr 810 ft.

GRIMES COUNTY—J. C. Barnett et al, G. W. Dodd 1, Timothy Jones sur, dr sndy shale 1933 ft.

HARDIN COUNTY—W. R. Alexander et al, Southwestern Lbr. Co. 1, Mary K. Sherman sur, sd in gbo at 625 ft. Houston Oil Co. & Republic Prod. Co., Ariola Fee 1, Ariola Prospect, dr sn 750 ft. Prudential Oil Co., Maco Stewart 1, dr gbo 844 ft.

HARRIS COUNTY — H. D. Morse et al, Schweinle 1, Hufsmith, dr shale 3400 ft. Victory C. Smith, Inc., P. S. Griffith 1, Mt. Houston, stg at 350 ft. Jno. Deering, Warren 1, Hockley, dr shale 1720 ft. Crown Central Pet. Corp., Siadous 1, Mykawa, ru. Gulf Prod. Co., Taylor 35, Pierce Junction, dr sndy shale 3880 ft. Moody-Pure Oil Co., Hermann Hospital 1, Pierce Junction, dr shale 4645 ft. S. B. Ward, Mowery 1, Pierce Junction, dr shale 1580 ft. Jno. Deering & Joe H. Burt, C.O.G. & Texaco Fee 2, Humble, dr pink shale 840 ft. Rio Bravo Oil Co., Sid Westheimer 1, Humble, prep to spd. Sun Oil Co., River 57, Humble, td 1318 in oil sn, prep to run cas. The Texas Co., House 26, Humble, dr 3649 ft, slight shw of oil at 3612-29 ft. E. M. Wilson Oil Co., Whelan & Pickens 1-A, dr shale and lime 1254 ft; Whelan & Pickens 10, Humble, dk.

JASPER COUNTY—Hext Dr. Co., Flournoy 1, 4 miles se Jasper, sd at 4521 ft after fsg job. Rio Neches Oil Co., Boykin A-4, Rockdale, ru.

JEFFERSON COUNTY—Coast Oil & Gas Co., J.O.B. Young 1, 3 miles ne Port Arthur, ru.

LIBERTY COUNTY — Cranfill Reynolds, Esperson 5, Esperson, sdtrkd, now dr 5455 ft; Davis 1, Esperson, td 3594 ft; Moores Bluff 1, (wo), Esperson, pulling scr at 2315 ft. D. & L. Prod. Co., Pivoto & Hankhamer 1, Hull, flowing 300 bbls fluid 40 per cent water; Mecon & Layton 3, Hull, dk. Hannah Oil Co., Hannah 1, Hull, dr gbo 538 ft. Houston Prod. Co., Baldwin 1, Hull, cor strks of sn shwg oil in shale at 4100 ft. Republic Prod. Co., Dolbear 97, Hull, 2354 in oil sn, woc. The Texas Co., Hannah Fee 1, (wo), td 4854 ft. Leon Brisley, Tr., J. M. Neal 1, dr 1321 ft, E. Tanner sur.

MATAGORDA COUNTY—P. S. Griffith, L. Bear 3, Big Hill, dr shale 2712 ft. Rycade Oil Corp., Myers 4, Markham, dr gbo 1080 ft. Sheppards Mott Development Co., Hawkins 1, Sheppards Mott, dr hd sn 3660 ft. United N & S Dev. Co., Stoddard 1, trying to sdtr, td 7831 ft.

MONTGOMERY COUNTY — Alpha Pet. Corp., So. Tex. Dev. Co. 1, Conroe, td 5158 ft woc at 5130 ft. Craft & Gieseke, So. Tex. Dev. Co. 1, Conroe, sdo in black shale, td 4996 ft. Gulf Coast Dr. & Prod. Co., So. Tex. Dev. Co. 1, Conroe, prep to core at 5080 ft. Hamilton, Hill & Hill, Gilbert 1, Conroe, dr 1600 ft. Heep Oil Corp., C. Brent 1, Conroe, plgd back with 100 sacks cement, woc, td 5254 ft; R. L. Cartwright 1, good for 65 bbls at 5186 ft; Cartwright 2, 5055 ft, drlg; Hamman 1, Conroe, td 5129 ft, woc at 5099 ft; C. C. Steinberger 1, dr 3800 ft. Humble Oil & Ref. Co., C. K. Dobbins 1, Conroe, reported having gummy sands with good saturation at 1720-62 ft and at 2380-94 ft; So. Tex. Dev. Co. 4, Conroe, dr 1400 ft; R. L. Cartwright 1, ready to spd. Lilley & Red Moon Oil Co., McDonald 1, Conroe, ru. Moore & Bruton, Hooper 1, Conroe, dr 1540 ft. Rowe & Flowers' Mrs. M. H. Alexander 1, Conroe, 5108 ft, sn and shale, 2 attempts at dst's failed; Varner Realty Co. 1, Conroe, rep boilers at 4860 ft. G. W. Strake, So. Tex. Dev. Co. 3, Conroe, hd br shale at 5111 ft. McElroy Oil Corp., C. A. Damuth 1, T. J. Nichols sur, spd. Miller Prod. Co., Foster Lbr. Co. 1, lcn 2240 ft s of n line and 465 ft e of w line of M B.Lawrence sur.

NEWTON COUNTY—L. A. James, Price & Bevil 1, 4 miles ne Bleakwood, dr 500 ft. Sun Oil Co., Peavey-Moore Lbr. Co. 1, F. Stover sur No. 4, ru.

ORANGE COUNTY—Sun Oil Co., Belile 1, Orange, dr 4720 ft.

POLK COUNTY — Cannon Oil Co., E. I. Duke 1, Peter J. Menard sur, dk. W. H. Freeman, Freeman 1, (wo), dr 3215 shale. Koch & Stevenson, R. H. Root 1, dr gbo 1066 ft.

SAN JACINTO COUNTY — Darby-Jones-McBee Dr. Co., J. R. Bennett 1, nw Cold Springs, dr shale 812 ft.

TRINITY COUNTY—C. M. Beckner, B. R. Mangum 1, sd at 1374 ft.

WALKER COUNTY — Howard & Dooley, Smithers Bros. 1, S. Manning sur, dr shale 2712 ft. W. E. Brown, Hoshall 1, E. Miller sur, dr sndy shale 1534 ft.

WALLER COUNTY — Seven Wells Corp., Maxwell 1, lcn 230 ft s of n line and 491 ft e of w line of 86-ac tract in Justo Liendo sur.

WASHINGTON COUNTY—Clay Creek Oil Co., Addie Bimage 1, Clay Creek, shwg oil at 1343 ft.

Louisiana Gulf Coast Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BLACK BAYOU DOME—		
Brownie Babette Oil Co., R. A. Moore 1	*	6622
CHACAHOULA DOME—		
States Production Co., W. H. Starck Swamp G	*	1680
EAST HACKBERRY FIELD—		
Moon Oil Co., Breaux 1	*	4275
Union Sulphur Co., Humble Oil & Ref. Co. 2	*	6078
The Texas Co., State E. Hackberry 9	*	3549
LEESVILLE DOME—		
The Texas Co., L. L. E. Leesville 5 1300		3663

Wildcat Drilling Report

(Wells shut down not included)

ASCENCION PARISH—Rio Bravo Oil Co., Community 1, Darrow, stuck dr st at 1500 ft. Union Sulphur Co., United Lands 21, Sorrento, dr sndy sh 1622 ft.

CALCASIEU PARISH — Gulf Ref. Co. of La., Gray 6, Vinton, dr 1110 ft. Magnolia Pet. Co., B. T. Waite 2, Iowa, dr 4870 ft; Bordages 9, (wo), Lockport, dr 6626 ft; Freyburg, Wolf 4, Lockport, dr 3395 ft. Union Sulphur Co., Moss 3, Lockport, tested sw at 5355 ft, prep to dpn; Fee 769, Sulphur, sn shwg oil 4896 ft; Fee 772, Sulphur, dr 700 ft. Vinton Pet. Co., Mathilda Gray 5, Vinton, fsh for dr st, oil sn 3650-67 ft.

CAMERON PARISH — Calcasieu Oil Co., Unsurveyed Island 1, E. Hackberry, prep to pull scr and wo. Jim Oil Co., Erwin 7, E. Hackberry, woc at 3256 ft. Moon Oil Co., Sanner 6, Old Hackberry, lcn. Magnolia Pet. Co., Cameron Meadows 2, (wo), Cameron Meadows, flwg 13 bbls from 5273 ft. Pop Oil Co., Ellender 1, Old Hackberry, dr rk 2394 ft. Union Sulphur Co., Pure Oil Co. 1, E. Hackberry, fsh for dr st in sn shwg oil at 8324 ft. Yount Lee Oil Co., School Land 11, Old Hackberry, bailed and no show from 3895 ft, prep to dr dpr; School Land 28, (wo), old td 2852 ft, cmtd back to 2795 ft, woc.

JEFFERSON DAVIS PARISH—D. C. Gillette, Jester 1, 27-8s-3w, dr 2826 ft. Little City Oil Co., Jennings Norwood 1, 44-9s-3w, dr 2256 ft.

LA FOURCHE PARISH—States Prod. Co., W. A. Starck Swamp H, Chacahoula, lcn 260 ft s and 345 ft e of nwc Sec. 70-15s-15e. The Texas Co., L. L. E. Leesville 5, Leesville, comp at 3663 ft for 1300 bbls, went dead, prep to wo.

ST. LANDRY PARISH—Gulf Ref. Co. of La., Wilson Cochran 2, Port Barre, ru.

TERREBONNE PARISH—The Texas Co., Lake Pelto 7, Lake Pelto, wor; State Lake Barre 4, (wo), oil sn 3789-3822 ft, r at 3425 ft; State Lake Barre 16, dr sn 866 ft; L. L. E. Lake Barre 3, (wo), dr rk 2192 ft.

VERMILION PARISH—Pure Oil Co., Mulvey Irrig. Co. 1, Gueydan dome, dr 3000 ft.

VERNON PARISH—Minerals Division of Llano Co., Llano Del Rio 1, 2 mi sw Leesville, dr gbo 1300 ft.

LOUISIANA FIELDS

Boom Continues at Zwolle; 225 Active Operations With Seven Completions This Week

Staff Correspondent, Shreveport, La.

Drilling Boom Continues In Zwolle Field

Shreveport, La.—Zwolle maintained its average of new activity during the week ending July 27 with 11 new locations, about the same number of new operations announced weekly for the last two months or more. There were seven completions in that district for the same seven-day period and the total of operations remained at 125.

Not counting the last week's new locations operations in that district on July 23 were as follows: Locations, 31; derricks, 21; rigs, 11; setting 10-inch casing, four; drilling, 12; bailing, 4; waiting standard rig, 7; setting six-inch casing, 6; setting four and one-half inch casing, 2; setting three-inch casing, 1; setting eight and five-eighths inch casing, 1; and shut down, 14.

The outcome of Wurtzbaugh & Torrens' Gray 1, Section 35-8-13, north of production in the "hot spot" southwest of the Zwolle townsite, will be watched with interest, as this is the first Zwolle test drilling a miniature hole and using a portable rig. Three-inch casing was set last week at 2056 feet. This type of rig is said to have been used considerably in East Texas with satisfactory results and its introduction in a chalk rock field is watched with interest.

Section Three at Zwolle Making Perfect Score

Shreveport, La.—Loring Oil Company's S. S. Martinez 1, SE NW SE Section 3-7-13, was completed July 22, flowing 60 barrels of pipe line oil per hour through one-fourth-inch choke with 300 pounds back pressure, at 2066 feet, five feet in the Zwolle chalk. It was the eighth producer in this section of that many tests completed there. Marl was logged at 2050 feet where 6⅝-inch casing was cemented after a successful drill stem test with an Edwards testing tool, the second drill stem test ever attempted in the Zwolle field.

Loring Oil Company is setting 36-pound 8⅝-inch casing at 5272 feet in Bowman-Hicks 18, Section 15-7-12, after five feet of oolitic lime with an oil saturation was recovered from 5272 to 5277 feet; the age is Glen Rose.

R. L. Gay, Trustee, after shutting down at 6052 feet in Long-Bell A-1, NW NW Section 10-18-13, to lay a water line has resumed and on July 27 was drilling at 6128 feet. This test, eight miles northwest of the Loring Oil Company's Bowman-Hicks 18, also had a saturated oolitic lime core in the Glen Rose at 2772 feet.

Another Location Staked For Cleburne County, Ark.

El Dorado, Arkansas.—Fred S. Craver and Associates made location during the last week for Doniphan Lumber Company 2, 700 feet north and 200 feet west SW SW Section 34-11-9, in Cleburne County, Arkansas, offsetting the same operators No. 1 test on this lease which was abandoned recently at 3740 feet, due to hung drill stem.

Another new operation for Arkansas is Fred Peterson's Fouke 1, Section 11-17-27, in Miller County, in the southwest part of the state.

Wildcat Test for Bossier Parish

Shreveport.—Breazeale and Steckol during the week ending July 27 spudded a wildcat test in Bossier Parish, Nattin 1, SW NE Section 15-22-14. This test is in the same quarter with Plain Dealing Oil & Gas Company's Nattin which showed considerable oil several months ago at 2890 feet and was standardized but refused to pump.

Beauregard Parish Wildcat Tests Unidentified Sand

Shreveport.—A drill stem test was made July 26, in DeRidder Development Company's McMahon 1, NE NW Section 33-2s-9w, Beauregard Parish, from 1100 to 1188 feet, which was dry with a slight show of gas. The test will be deepened. The sand at bottom of the hole was dark green and has been identified as Catahoula in age. As this test is considered in the general eastward trend of the Jackson horizon in Conroe, East Texas, although considered somewhat south of the main trend, it is likely efforts will be made to take it to the base of the Jackson, if possible. Previous reports that 6⅝-inch casing had been cemented in this test at 1100 feet were in error.

Zwolle East Field Given Further Extension North

Shreveport, La.—The north edge of the Zwolle east field was extended 1½ miles north during the week ending July 27 when J. H. Reeves' Sabine State Bank 1, NE SW Section 28-8-11, Sabine Parish, was completed in chalk at 2575 feet, pumping 25 barrels of oil daily. The well was standardized with 1000 feet of oil in the hole.

Texas Try for Zwolle Oil Bailed Dry and Shut Down

Shreveport, La.—Ridgeway & Smith's Polley 1, Domingo Gonzales Survey, Shelby County, Texas, five miles northwest of West Zwolle (Blue Lake) production, which logged Zwolle chalk 160 feet high at 1936 feet, bailed dry and is waiting orders at 2375 feet in chalk. A small gas show appeared before the test was bailed after liner was run. This was the first show of any kind that appeared in the chalk. Casing was cemented at the contact point.

In Marion County, Texas, a block of wildcat acreage centering north of Jefferson and located in the John Hanks, Ely Usery and R. Bennington Surveys, is being assembled by Starling and Preston. The block contemplated is about 3000 acres.

Louisiana Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
SABINE PARISH (Zwolle)—		
J. H. Reeves, Sabine State Bank 1, 28-8-11	25	2575
A. F. Tarver, Stoker 1, 34-8-10	*	3250
Craig et al, Travis 1, 13-7-11	30	2580
W. F. Lacey, Hughes 1, 11-7-11	*	2621
W. F. Lacey, Hughes 2, 11-7-11	*	2552
F. M. Burke, Gray 1, 3-7-13	*	2450
Loring Oil Co., S. S. Martinez 1, 3-7-13	1440	2066

New Operations

ACADIA PARISH—R. N. Hines, Rowson & Haber 3, 46-9s-2w, 1800 ft n 400 ft w se cor of sec.

BOSSIER PARISH—H. Steckel, Mrs. J. M. Nattin No. 2, 15-22n-14w, 220 ft n and e sw cor sw¼ ne¼ of sec.

CALCASIEU PARISH—Marrs McLean, F. H. Gray No. 14, 33-10s-12w, 690 ft s and 280 ft from center of sec. Starks & Emerson, Industrial Lbr. Co. 1, 30-9s-12w, 270 ft e and s nw cor sw¼ ne¼ of sec.

SABINE PARISH—The Texas Co., Maines No. 2, 5-7n-11w, 330 ft n and 330 ft e sw cor se¼ of sec. Magnolia Pet. Co., O. E. Williams No. 1, 6-7n-10w, 155 ft s and 408 ft w

ne¼ nw¼ of sec. Ben F. Smith, W. M. Turner No. 2, 4-7n-11w, 250 ft n and 450 ft e sw cor nw¼ nw¼ of sec. A. D. King, Tr. T. A. Webb No. 1, 31-8n-11w, 150 ft s and 235 ft e from nw cor nw¼ sw¼ of sec.

Drilling Report

(Wells shut down not included)

BIENVILLE PARISH—Black Lake Dev. Co., Frank Halston 1, se se 17-18-16, dr chalk 2393 ft.

BEAUREGARD PARISH—DeRidder Dev. Co., McMahen 1, ne nw 33-2s-9w, tested dry very slight show gas with Edwards tester, 1100-88 ft, arr deepen.

BOSSIER PARISH—Steckol & Breazeale, Nattin 1, sw ne 15-22-14, sp dr 20 ft.

CADDO PARISH—Jno. W. Moffitt, Cynosure 1, 36-18-15, lcn. Louanna O&G Co., Cushman 1, ne sw 33-19-16, dr chalk 1607 ft.

CLAIBORNE PARISH — Leue Oil Co., Kinder 1, 2-21-7, owdd, co, td 3500 ft. United Gas Pub. Serv. Co. et al, Warren Brown et al, sw ne 1-19-6w, sp cemtd 12½ cas 513 ft.

CALDWELL PARISH—Carter Bell et al, A. R. Taylor 1, 17-14-4e, sd 3712 ft shale.

DE SOTO PARISH—J. M. Bridges, Joiner 1, nw nw 33-11-12, sd 3000 ft shale (contract depth). E. T. Oakes, Johnson 1, 30-13-15, core 3778 ft. De Soto Dev. Co., Nickie 1, 7-13-12, rig. Coker et al Boone 1, 12-10-11, 10-inch 60 ft. Donley Bros., H. Smith 1, 31-14-15, sd for fuel 2470 ft shale. Walters & Nicholson, Jim Guy 1, 3-11-13, core 2734 ft.

GRANT PARISH — Security Pet. Corp., Swope 1, 16-9-1e, wosr, td 1585 ft. Robichaux et al, Bradford 1, 16-9-1e, rig.

MOREHOUSE PARISH—Feagel & Kalil, Davenport 1, 28-21-6e, rig.

NATCHITOCHES PARISH—Saline Bayou Dev. Co., Bodeaw Lbr. Co. 1, sw sw 9-12-5w, sd 763 ft. Rains et al, Beard 1, 8-8-10, dk. H. W. Perritt, Cook 1, 3-8-9, sd 2992 ft.

OUACHITA PARISH—Monroe Oil & Roy. Co., Thieler 1, se nw 34-18-2e, 12-inch cas 100 ft.

RED RIVER PARISH—C. F. Davis, Peterson 1, sw nw 12-14-11, dk pat. Petroleum Ind., Inc., Madden 1, sw ne 21-14-10, fsh bit and collar 1015 ft.

SABINE PARISH—R. L. Gay, Tr., Long Bell A-1, nw nw 10-8-13, core 6128 ft hd lime. Loring Oil Co., Bowman-Hicks 18, 15-7-12, setting 36-lb. 8⅝ cas at 5272 ft after 5 ft core oolitic lime (Glen Rose), showed oil, td 5277 ft. King, Tr., Davis 1, 29-7-11, lcn. State Prod. Co., Davis B-1, 17-7-10, dk. G. E. Jordan, Dew 1, sw se 34-8-11, rig. S. A. Lane et al, DeKeyser 1, nw ne 23-7-11, dry, slight oil and gas show, wo 2930 ft. Supreme Oil Co., Pruitt 1, se sw 30-8-11, sd 1640 ft. J. B. Hughes, Stille 1, 36-8-11, dry at 2693 ft, sd. W. S. Smith, Hamilton 1, ne ne 32-8-11, dk. Langford et al, Sabine 1, 8-7-13, dk. Wurtsbaugh & Torrens, Peterson 1, sw se 26-8-13, dk pat. Bridwell O&G Co., Billbray 1, se nw 32-8-11, sp wo cas, td 2236 ft; Billbray 2, ne sw 32-8-11, lcn. H. C. Maulding, Moores 1, se ne 16-7-13, dk. Triangle Drilling Co., La. Long Leaf 1, se se 11-6-11, sp cemtd 12½ cas 213 ft. V. V. Bull et al, Henderson 1, sw se 31-8-10, sp 10-inch 100 ft, dr 260 ft. A. D. King, Trs., Webb 1, nw nw 31-8-11, rig. Pelican Nat. Gas Co., Buckley 1, nw nw 6-7-10, rig. Paul Miller, Tr., Lucius 1, ne sw 31-8-10, sp sd for boiler 1100 ft. R. W. Boulding, Williams 1, 7-7-10, dry wo 2620 ft. Magnolia Pet. Co., Williams 1, 6-7-10, rig. H. W. Perritt, Brown Lbr. Co. 1, 6-7-10, owdd, co to set liner, td 2753 ft. B. I. Daniels, Armstrong 1, 31-8-10, lcn. Ben Merritt, Chadick 1, 31-8-10, dk. Bee Oil Co., Hill 1, 32-8-11, rig.

VERNON PARISH—Llano Coop. Colony Fee 1, nw ne 34-2n-9w, arr set 10-inch cas, td 1310 ft.

WEBSTER PARISH—Geo. Pearce, Ambrose 1, sw se 22-20-10e, rig.

WINN PARISH—P. V. T. Oil Co., Southern Bag & Paper Co. 1, nw sw 28-13-5, sp arr set 10-inch cas 63 ft.

ARKANSAS FIELDS

Pull Casing in Arkansas For Louisiana Pipe Line

El Dorado, Ark.—The production department of The Texas Company has completed pulling and re-conditioning 72,000 feet of six-inch casing from abandoned wells in the Smackover field, and is reported moving this pipe to south Louisiana for use in a pipe line outlet 40 miles in length at the Port Barre field. The crew that did the work in Smackover has been moved to the Homer, Louisiana, field where similar work will be done on abandoned tests of the company in that field.

Portable machinery for cleaning, rethreading, greasing and wrapping the pipe was used. The Texas Company has abandoned approximately 75 wells and pulled casing from them in the Smackover field, about one-half of the company's total in the district.

Arkansas Field Developments

New Operations

CLEBURNE COUNTY — Frank S. Craver et al, Doniphan Lbr. Co. 2, 300 ft n&w of sec nw sec 33-11-9.

WASHITA COUNTY—R. A. McLeon, L. D. Neeley 1, swc se sw sec 36-12-18. Fabrey Creek Oil Co., Anderson 1, 200 ft s &w nec ne sw.

Wildcat Drilling Report

(Wells shut down not included)

CLEBURNE COUNTY—F. S. Craver et al, Doniphan Lbr. Co. 2, 700 ft n and 200 ft e swc sw 34-11-9, lcn.

DREW COUNTY — Cooperative Dev. Co., Ogles 1, 35-13-5, core 2703 ft.

LINCOLN COUNTY — L. B. Cook, Tr., McGehee Pltg. Co. 1, 5-8-7, fsh ds, td 2800 ft.

LITTLE RIVER COUNTY—Harrell et al, Taafe 1, sw nw 25-12s-32w, rig.

MILLER COUNTY—Fitzwater et al, E. L. Beck 1, sw se 35-15-26, 7-inch OD cas 2919 ft, td 2926 ft. C. J. Norsen 1, se sw 20-15-27, rig. E. A. McCowan 1, nw se 22-15-28, dk. Fred Peterson, Fouke 1, 11-17-27, dk pat.

OUACHITA COUNTY—Chas. Steele et al, Anderson 1, 36-12-18, sd 470 ft, (corrected depth). Copenhaver et al, Berg 1, 13-15-17, wosr, td 2208 ft.

PIKE COUNTY—Kentucky-Ark O&G Co., Inc., East 1, 13-9-23, rig.

ST. FRANCIS COUNTY — Kentucky-Ark. O&G Co., Inc., Britton 1, ne nw 1-4n-1e, dry thru ds 2302 ft, dr 2411 ft (corrected depth).

WASHINGTON COUNTY—Chase & Rogers, Cunningham 1, sw ne 14-15n-32w, wo cas, td 1750 ft.

Cut Bank Oil Producer Gets Ready to Pump 75 Barrels

Cut Bank, Mont.—Roy Tarrant is running rods and tubing to put his new oil producer southwest of the Cut Bank field gas territory, on the pump. It is believed that this well will be good for 75 barrels per day, settled. It swabbed 115 barrels. Northeast of the gas wells The Texas Company's International Land Company 1 found sulphur water and abondoned the hole at 2900 feet. It has been announced that the L. B. O'Neil group plans to drill a series of wells this summer in the territory which the Tarrant well has proved up for oil. O'Neil drilled the gas wells in the Cut Bank field for Montana Power Company.

First Failure in Whitlash Finds Water in Two Sands

Chester, Mont.—The first disappointmen in the new oil sector of Whitlash field, northern Liberty County, Montana, was the A. E. Crumley test on the Strode ranch, south of the discovery oil producer. It has been abandoned at 2410 feet having found both sands in which oil was discovered in the discovery well to carry water.

NEW MEXICO . . . ROCKY MOUNTAIN

Whitlash Test Gets Water in Sand Where Discovery Well Had Oil; Cut Bank Producer Will Pump.

Staff Correspondent, Casper, Wyoming

Must Develop Gas to Hold Payette, Idaho, Franchise

Payette, Ida.—Idaho Gas & Utilities Corporation has been granted a franchise to furnish the City of Payette with natural gas. The corporation has recently taken over the holdings of Louis Lilly and associates on Crystal dome; there is a completed well on the structure which is good for a million and a half feet of gas from three sands with the hole bottomed at 1932 feet. The corporation will be required to have adequate gas supply developed by October 1, and have it piped for service in Payette by January 1 or forfeit the franchise. The completed well is two miles east of the city.

Protest Lowered Crude Price in Wyoming Fields

Casper, Wyo.—Ohio Oil Company announced last week that the temporary postings in the Grass Creek, Elk Basin, and Rock Creek fields for crude oil at the wells had been made permanent; this amounts to a reduction of 10 cents per barrel and makes Grass Creek and Elk Basin sell at $1.10 and Rock Creek 90 cents. Carl M. Cox, state land commissioner, has protested the reduction on the ground that the crude oil prices are out of line with the refined prices in the state.

Illinois Renewing Line In Northern Wyoming

Greybull, Wyo.—Illinois Pipe Line Company is renewing 18 miles of the line from northern Wyoming fields to the Standard Oil Company (Indiana) refinery at Greybull; the replacement pipe being used comes for the most part from the line recently taken up from Salt Creek to Casper. That line from Cowley Junction to the Garland-Byron fields is being replaced by six-inch pipe.

Mountain States Field Developments

COLORADO

New Operations

LAS ANIMAS COUNTY—P. W. Harr, Barela 1, nw nw ne 33-33s-62w. P. W. Harr, Cordova 1, se se ne 15-33s-63w.

Wildcat Drilling Report

(Wells shut down not included)

ADAMS COUNTY—Hills Dome Lease Dev. Co., se 27-3s-68w, cemented, td 4025 ft.

ARAPAHOE COUNTY—McDeb Drlg. Co., Fitzsimons 1, ne 7-4s-68w, co 6092 ft.

ARCHULETA COUNTY — Oil City Pete Co., Fitzhugh 1, sw 34-33n-13, sd for pipe, gas show 717 ft.

DELTA COUNTY — Black Canyon O&G Co., 2, Lot 12, 5-15s-94, install larger rig, 330 ft.

EL PASO COUNTY—Gulf States Oil Corp., Carson 2, 10-16s-66w, dr out plug 2000 ft.

GRAND COUNTY—Oil & Mineral Lands, Inc., McElroy 1, se sw 14-2n-81, resume at 618 ft.

LA PLATA COUNTY—McGarr Pete Co.'s Pinon Mesa 1, ne 34-33n-12, rig up. Phipps et al, sw 9-33-13, td 520 ft.

LARIMER COUNTY—Mayer et al, Reed 1, nw 28-4-60, sd 3800 ft.

LINCOLN COUNTY — Eastern Colorado Oil Corp., State 1, nw 36-14s-57w, cem off tools 3412 ft.

MONTROSE COUNTY—Uncompahgre O. & G. Co., Vandemark 2, 27-50n-10, td 800 ft.

MONTEZUMA COUNTY—Oliver, Downey, Smith et al, nw se 31-36-17, spd.

PARK COUNTY — South Park O&G Co., Milligan 1, se 13-8s-76w, cem cave, sd 2912 ft. South Park Oil Co., Esche 1, ne 5-9s-76w, co and fish pipe, td 2470 ft.

WELD COUNTY — Tulsa-Ft. Morgan Oil Co.'s Anthes 1, ne ne 24-8n-59w, cem 10-inch at 2300 ft. Ohio Oil Co., Butters 1, 7-6n-60w, dr 6500 ft. Manning & Terry, Niles 1, ne ne 13-6n-61w, dr 6685 ft.

WASHINGTON COUNTY—Middlemist Oil Co. et al, sw se 14-4s-56w, cem cave 1575 ft.

NEW MEXICO

Wildcat Drilling Report

(Wells shut down not included)

BERNALILLO COUNTY—Norrins Realty, Pajarito Grant 1, 22-9n-1e, dr 2203 ft.

CHAVES COUNTY — Warman Oil Trust, Evans 1, 15-14s-25e, sd to finance 1433 ft. R. D. Compton, sw se 20-10s-24, spd 212 ft.

DE BACA COUNTY — Montgomery et al, Wood 1, sw 6-4n-20e, fsh tools 4462 ft. Landowners Oil Co., State 1, ne 16-1s-27e, dr black lime 5015 ft.

DONA ANA COUNTY—Middle States O. & G. Co., Boretzi 1, 14-26-5e, rigged.

HARDING COUNTY — Carbon Dioxide Corp., Tinsley 1, 31-21n-31, lcn.

LUNA COUNTY—Angelus O&M Co., State 3, se 30-21-10, cas 6171 ft.

RIO ARRIBA COUNTY—Governador Oil Co.'s 1, se 14-29n-7w, co to complete with rotary 2070 ft.

ROOSEVELT COUNTY—Peterson Oil Co., Good 1, se ne 32-5s-30e, rig up.

SAN MIGUEL COUNTY—Cabra Springs O&G Co., Thompson 1, ne 21-12-22, changing to steam, td 2540 ft.

SOCORRO COUNTY—J. C. Green et al, 15-2n-5w, dr resumed 300 ft.

VALENCIA COUNTY — Western Natural Resources, No. 1, 15-2n-5w, spudded in July 15.

MONTANA

New Operations

HILL COUNTY (Signal Butte structure)—Fargo Oil & Gas Co., n 29-37n-15e, spd.

Completions

TOOLE COUNTY (Cut Bank district)—The Texas Co., International Land Co. 1, 6-34-4w ..... * 2900

Wildcat Drilling Report

(Wells shut down not included)

BROADWATER COUNTY—Capitol O&G Co., nw 7-8n-1e, dr bel 2200 ft.

CARBON COUNTY—Corbett Royalty Co.,

sw se 1-6s-23e, sd 1150 ft. Jack Creek O&G Co., se 15-7s-23e, rig up. Midland Oil Co., nw 24-6s-23e, sd.

CARTER COUNTY—E. T. Moorehead, sw 34-4s-57w, wait for 12½ inch at 350 ft.

CASCADE COUNTY—Buscher & Cassady, Johnson 1, se 19-22-3e, wait for Merz test, td 1387 ft. Charles Merz et al, Sheffels 1, nw 4-21-4e, run cas 1725 ft.

FALLON COUNTY—H. W. MacDonald's 1, sw 28-8n-60e, dr bel 1900 ft.

FERGUS COUNTY—Melton Corp.'s 1, sw 24-21n-17e, dr and carry 8¼ inch below 3170 ft.

GALLATIN COUNTY — Montana Gas & Pete Corp., Adams 1, 35-1n-2e, refinancing, td 1650 ft.

GLACIER COUNTY—Finn et al, McLellan 1, nw se 12-34-6w, rig up. Blackfeet Petroleum, ne 28-36n-12w, dr and coring 3300 ft. Tarrant et al, Yunck 1, nw nw 12-34-6w, rig up, ready to spud. Tarrant et al, Browning Development Co.'s Reickhoff 1, ne 3-34-6w, ready to spud. The Texas Co., Carl E. Peterson 1, se ne se 22-36n-6w, dr 1500 ft.

GOLDEN VALLEY COUNTY — Golden Valley Oil Co., 2-6n-22, may abandon 3335 ft.

HILL COUNTY—Fargo Oil & Gas Co., n 29-37n-15e, spd.

LIBERTY COUNTY—Oiens et al, Hicks 1, se ne 26-37-4e, dr 1400 ft. R. C. White et al, Hicks 1, ne ne 27-37-4e, dr deeper from 2220 ft. Teter & Strawn, Shafer 1, sw sw 24-37-4e, lcn. Postlewaite et al, sw ne 26-37-4e, plugged back from 2625 ft to produce at 2414-2420 ft. Postlewaite for W. D. Draig et al, se ne 34-37-4e, lcn. A. E. Crumley, Strode 1, ne ne 35-37-4e, to abandan 2410 ft. Northland O&G Corp., Yurman 1, sw 32-33-5e, ready to resume 2815 ft. Peoples O&G Co., nw 17-35-6e, pipe trouble 2100 ft. Dohm et al, Millen 1, sw 10-37-5e, dr (depth not reported).

MUSSELSHELL COUNTY — Minnesota-Flatwillow Pete Co.'s 1, sw 7-11-31e, try for wso, td 2800 ft.

PHILLIPS COUNTY—St. Cloud O&G Co., sw ne 20-34n-24e, dr 500 ft.

PONDERA COUNTY—Bell-Adams, Venetz 1, ne 31-27-4w, dr resuming 920 ft.

SWEETGRASS COUNTY—Shoshone Consolidated Oil Co., nw nw 23-2n-15e, run 4-inch to sow, td 5790 ft.

TETON COUNTY—California Co.'s Sullivan 1, nw 34-28-7, showing some oil, 3500 ft. Earl Oil Co., ne se 22-22n-8s, dr resumed 3860 ft.

TOOLE COUNTY—Oregon Synd., se 20-36-2e, try to pull cas to plug back from 2580 ft.

VALLEY COUNTY—Opheim O&G Co., ne 28-37n-38e, mvg in.

YELLOWSTONE COUNTY—Spokane-Laurel Oil Co., sw se 30-2s-24e, run 6-inch top Dakota 1390 ft. Peter Antonioli, ne ne 2-2n-25e, wait for cas 2370 ft.

WYOMING
Wildcat Drilling Report
(Wells shut down not included)

CARBON COUNTY—Midwest Refining Co., U. P. 27, 11-20-81, dr into Dakota 4376 ft.

CONVERSE COUNTY—John Ackard, se 24-33-72, sd to refinance 2020 ft. Converse O. & G. Co., sw sw 27-33n-72w, set cas 2500 ft.

CROOK COUNTY—St. Onge O&G Co., ne se 20-53n-61w, spudding.

FREMONT COUNTY—Ward O&G Co., 28-34-90, dr top of Frontier, around 3200 ft. Yellowstone Oil Co., Gabus 1, sw 14-38n-94w, standing 2100 ft. Premier Oil Co., 7-28n-92w, lcn.

LINCOLN COUNTY—H. C. Harris et al, se 14-21n-117w, dr bel 1550 ft.

NATRONA COUNTY—Mutual Oil Synd., Midway 2, sw se 14-36-79, dr bel 5800 ft. Summit Oil Co., Trevett 1, 21-33-80, dr 1400 ft.

SWEETWATER COUNTY—Vermillion Oil Co., sw se 16-12n-99w, mvg in to resume 4685 ft. Hidden Treasure Oil Co., se sw 11-20n-104w, resume 1720 ft.

UINTA COUNTY—Transwestern Pete Co., Ltd., (Doherty) 6-14n-118, dr 4040 ft. Park City O&G Co., ne nw 16-15n-113w, dr out cement 2968 ft.

WASHAKIE COUNTY—Bales Oil Trust, Brome 1, ne nw 31-48n-90w, dr 1500 ft.

WESTON COUNTY—Julius Peters et al, Weitzell 1, sw nw 30-46-64, dr 4475 ft. Gose Synd., ne 28-37n-63w, fsh 5050 ft. LeFaivre Oil Synd., nw se 29-45-68w, plan to resume 1800 ft.

SOUTHEASTERN STATES

Jackson Open Flow Gas Potential Now Estimated 2947 Million Cubic Feet. Alabama Test Near.

Jackson Completes One to Bring Total of 97 Gassers

Jackson, Miss.—The ninety-first gasser in the Jackson field was completed during the past week in Joseph A. Baker and associates' Hudson 1, NW NE Section 11-5-1e, Hinds County, making an estimated 20 million cubic feet of gas daily. This brings the Jackson field's potential open flow capacity to an estimated 2,947,000,000 cubic feet daily. Midway black shale was logged at 2342 feet and Midway chalk at 2446 feet, with total depth of 2453 feet; elevation is 269 feet. United Gas Public Service Company has a one-sixteenth over-riding royalty on this well and the surrounding 62 acres.

James A. Alexander, Trustee's Holmes 1, SW NW Section 31-6n-2e, Rankin County, an edge test northeast of the field, is checking low having logged the Midway black shale at 2447 feet; elevation is 272 feet. Operators still retain hopes of possible oil production in the chalk and a core in this formation will be taken when it is reached. Oil rights under this lease were retained by Gulf Refining Company and Home Oil Company when a year ago it sold the gas rights on certain Jackson field holdings to United Gas Public Service Company.

Assemble Mississippi Block South of Jackson Uplift

Jackson, Miss.—A test seeking a shoreline condition on the south of the Jackson Uplift from which gas in the upper part of the Midway chalk at a depth of 2400-2500 feet is secured in that field, is being planned by Cleve Love and associates who are assembling a 5000-acre block in Hinds and Rankin Counties, Mississippi, centering near the hamlet of Byram.

South Mississippi Test Will Investigate Jackson

Jackson, Miss.—Stauffer and Kouri, Trustees, drilling Bond 1, SW NE Section 18-2n-14w, Lamar County, southern Mississippi, expect to make a drill stem test at base of the Jackson, which should show the importance of this horizon in the trend east across southern Mississippi. The hole is drilling below 2338 feet at which depth bit was in lime. The Jackson was logged at 1565 feet after Vicksburg was topped at 1350 feet. A test drilled a number of years ago by Choctaw Oil & Gas Company in Franklin County, near Meadville, is said to have shown oil at base of the Jackson. This test, however, is approximately 90 miles west and slightly north of the Lamar County test.

Lamar County, Alabama, Test Near Expected Sand

Mobile, Ala.—P. J. McAlpine and associates' Gardner 1, NW NW Section 22-15s-17w, Lamar County, Alabama, topped a black slate at 2822 feet on July 27 and was drilling ahead with the expectation of picking up a sand within the next 80 to 100 feet. The formation is Mississippian in age. Elevation is 324 feet. This test topped Bangor Lime at 2645 feet and cuttings in this formation under chloroform showed oil. Later, from 2727 to 2757 feet, 30 feet of salt water sand was logged and 6⅝-inch casing previously cemented at 2617 feet was pulled and reset below the water sand at 2772 feet in black lime.

Southern States Field Developments

MISSISSIPPI
Completions

HINDS COUNTY (Jackson)—Joas. A. Beker et al, Hudson 1, 11-5-1e . . . . . ¶20 2453

Wildcat Drilling Report
(Wells shut down not included)

HINDS COUNTY—Miss. Minn. Oil Co., sw ne 23-6n-4w, sd 3150 ft. (Wilcox).

LAMAR COUNTY, (Purvis) — Stauffer & Kouri, Trs' Bond 1, se ne 18-2n-14w, top Vicksburg 1350 ft, top Jackson 1565 ft, dr lime 2338 ft.

LOWNDES COUNTY — Lowndes County O&D Co., Carr Est. 1, ne nw 34-17-16, dr 2185 ft.

MONROE COUNTY—P. J. McAlpine et al, Chas. Rye 1, se nw 22-15s-16w, dr gray sandstone 1180 ft.

ALABAMA
Wildcat Drilling Report
(Wells shut down not included)

LAMAR COUNTY, (Vernon) — P. J. McAlpine et al, Gardner 1, nw nw 22-15s-17w, elev. 324 ft. reset 6⅝-in cas 2772 ft, top Bangor lime 2645 ft, top black slate 2822 ft, dr slate 2823 ft.

MOBILE COUNTY—Ohio Oil Co., Bethel 1, nw sw ne 34-3s-2w, cemtd 9⅝ cas at 3295 ft. in sandy shale, dr plug. J. C. Prine et al, M.&O. Ry. 1, se ne sw 33-4n-2w, dr 1750 ft.

WASHINGTON COUNTY—South Ala. O&G Co., St. Stephens A-1, 26-7n-1w, dk.

FLORIDA
Wildcat Drilling Report
(Wells shut down not included)

PINELLAS COUNTY—Pioneer Oil & Mining Co., Yerxa et al 3, 2-29s-16e, dr gypsum 1570 ft.

WALTON COUNTY—Calumet Co., Walton L&T Co. 1, se ne 7-1n-17w, dk. pat. Oil City Corp., Walton L&T Co. 1, ne nw 12-1n-19w, dr below 5190 ft.

MICHIGAN FIELDS

Drilling Centered East End Of Central Michigan Field

Mt. Pleasant, Mich.—Two new commercial wells, although not large in production, were completed during the past week in the east border district of the Central Michigan field. A third oil producer was struck in the Vernon pool while a wildcat test southeast of the proven area was abandoned as a dry hole in the Dundee sand.

Walter L. McClanahan, Inc., completed Shaffer 1, Midland County, Greendale township, SW SW SW Section 12, with an initial production of 125 barrels of oil a day from the Dundee sand at 3553 feet. In SW SW NE of the same section, Michigan Oil & Gas Company made a 90-barrel well in Bond 1 in the Dundee at 3539 feet. It was announced by the operators that they planned to sink the test at least another 10 feet in an attempt to pick up a heavier pay sand. A half-mile southeast of Bond 1, Gordon Oil Company last week completed Talker 1 with an initial production of 260 barrels.

The bulk of drilling activity in this district is now centered in the vicinity of the two new wells. There are four commercial producers in Section 12 and two tests being drilled. In a radius of three quarters of a mile five other tests are being sunk.

Sections 10 and 15 of Greendale township, Midland County, about two miles west of Section 12, is the center of the east extension oil pool of the Central Michigan field, opened a year ago last May. There are 33 commercial oil producers in the two sections, now about 60 per cent developed with one test to 10 acres.

In Isabella County, Vernon township, SW SE SW Section 22, J. C. Arthurs Company, completed Schug 2 in the Dundee sand at 3773 feet with an initial production of 300 barrels. The No. 1 well on the lease, completed in December 1931, had an initial of 800 barrels.

Pacific Oil & Gas Company is plugging Ottway 1, Dundee oil test in Midland County, Porter township, Section 27, after drilling 3480 feet and failing to get production.

Interest was aroused the last of the week when a "smell" of gas was reported in Atha Drilling Company's deep test in Midland County, Ingersol township, SW SE Section 21. The gas show was reported at 4630 feet and was believed coming from the Sylvania sand. The test was dry in the Dundee and according to the operators is to be sunk to approximately 6000 feet. It is in wildcat territory.

American Natural Gas Company, drilling a gas test well in Mecosta County, Sheridan township, Section 10 on the T. K. Buzard lease, claims a record for drilling through the drift in this field. Using a rotary rig the pipe was landed in three days at 645 feet with approximately 36 hours actual drilling time. Drilling will be continued with cable tools. Little use has ever been made here of rotary drilling equipment one of the chief reasons being that there is no native mud. The drift in the main part of the field runs from 250 to 400 feet.

Central Michigan Drilling Far Ahead of Last Year

Mt. Pleasant, Mich.—Drilling activity in the Central Michigan field made big gains during the first six months of this year as compared with 1931, drilling records show. From January 1 to July 1 there were 41 producing oil wells drilled in as compared with 37 completions during all of the previous year.

On July 1, 1932, there had been 269 oil wells completed in the district, 25 natural gas wells, and 85 dry holes. The state conservation department has issued 73 drilling permits this year. The field was opened in 1928.

Drilling this year has centered chiefly in the "east extension pool" and border areas. The "east extension pool" was opened up a year ago in May with the McClanhan-Struble and Columbia Oil and Gas-Hornick discovery tests. The Struble well is located in Midland County, Greendale Township, Section 10, and at the time it was drilled in represented an extension of more than three miles east of the old proven area.

Production has been found more than three miles east of the Struble well since. In this area most of the development is being done today.

Fifty-nine wells ranging in production from 200 barrels to 3600 barrels a day have been drilled in the "east extension pool."

Gas test drilling has been curtailed this year as a result of inability to obtain markets for the gas already developed. Only one gas test, the Pere Marquette-Sovereign in Clare County has been drilled this year.

Michigan Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
MIDLAND COUNTY—		
Gordon Oil Co., Talker 1, Lee Township, nw nw sw sec 7	260	3549
Pure Oil Co., Harris 1, Greendale Township, ne ne sw sec 15	160	....
Holmes 2, Greendale Township, sw sw nw sec 8	430	3580
Mullet 4, Greendale Township, sw sw ne sec 15	400	3565
Walter L. McClanahan, Inc., Shaffer 1, sw sw sw sec 12	125	3553
Michigan Oil & Gas Co., Bond 1, sw sw ne sec 12	90	3539
Pacific Oil & Gas Co., Ottway 1, ne se ne sec 27	*	3480
ISABELLA COUNTY—		
J. C. Arthurs Co., Bowman 1, Vernon Township, nw nw nw sec 27	*	3828
J. C. Arthurs Co., Schug 2, sw ne sw sec 22	300	3773

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The GOTT Water Can is the safe, handy way to keep a fresh supply of pure drinking water always at hand wherever you may be—It's health insurance...your supply store has them. Get one today!
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GOTT Water Cans: 1 gal. 3 gal. 5 gal. and 10 gal.
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H. P. GOTT MFG. CO., Winfield, Kansas
KEEP PURE DRINKING WATER ALWAYS HANDY

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Main Office and Works, Butler, Pa.

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Authoritative geological descriptions of more than 125 oil and gas pools in 19 states: Arkansas, California, Colorado, Illinois, Indiana, Kansas, Kentucky, Louisiana, Michigan, Montana, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, West Virginia, Wyoming.

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EASTERN STATES

Completions

PENNSYLVANIA

BRADFORD FIELD—

Sloan-Zook Producing Co., Fee 30..	20	....
Sloan-Zook Petroleum Co., Fee 14..	2	....
Sloan-Zook O l Co., Young 1	3	....
South Penn Oil Co., Melvin 304....	3	....
E. C. Tanner Estate, Griffith 7.....	4	....
George W. Smith Estate, Smith 8..	7	....
Minard Run Oil Co., Cram 16.....	5	....
Bovaird & Reed, Quintruple 10.....	2	....
Saph & Wright, Bingham 394 tr 16	4	....
H. H. Harper, Kinley 3	2	....

CENTER-MIDDLE FIELD—

F. M. Boocks, Boocks 13.....	3	....

BUTLER COUNTY—

Pittsburg Co., Raybuck 1.....	*	....
Kohlmeyer & Co., McJunkin 8.....	2	....

CLARION-VENANGO—

Myers & Ware, Stearns 11.....	2	....
Mose Kareon, Watson 7.....	2	....
J. D. Berry & Co. McFadden 20....	2	....
J. B. Smithman, Lots 68-75-76, 154..	2	....
Corbett & McCoy, Corbett 1.....	*	....

TIOGA-WAYNE COUNTIES—

Linderman, Crane & Co., Van Zile 1	¶2½	....
Penn York Gas Co., Brown 1.....	*	....
Scranton & Co., Morris 1.....	*	....

GREENE COUNTY—

South Penn Oil Co., White 1.....	*	....
Carnegie Natural Gas Co., Laugh 1.	¶½	....

NEW YORK

ALLEGANY COUNTY—

First National Bank of Boliver, Childs 18	7	....
A. Johnson & Co., Johnson 1.....	2	....
C. M. Lippert & Co., Warters 12....	2	....

WEST VIRGINIA

LOGAN COUNTY—

West Virginia Gas Co., Dingess Run Coal Co. 36	*	2897

ROANE COUNTY—

O. E. Garrett & Co., Hildreth 1....¶1¼		....
K. M. Hunt & Co., Riddle 1.....	¶1	1497

SOUTHEASTERN OHIO

MONROE COUNTY—

Gordon Green, Draper 5.....	4	1422

WASHINGTON COUNTY—

Robinson Bros., Stewart 2.....	2	800
Daily & Co., Schultheis 5.....	*	2600
Laura K. Lorenzo & Co., Lorenzo 5	30	170
R. W. Turney, Rowland 1.....	*	553

NORTHWESTERN OHIO

WYANDOT COUNTY—

Upper Sandusky Oil & Gas Co., Saltzman 1	¶1	1343

INDIANA

CRAWFORD COUNTY—

Lentz-Miller Trustee, Beasley 1....	*	....

DAVIESS COUNTY—

Ben D. Ruble, Gilloogy 2	*	....

FOUNTAIN COUNTY—

Coats-Smith Oil Co., Snider-Mason 1	*	1740

GIBSON COUNTY—

Knox Engineering Co., Simms 1....	¶5	1502

KNOX COUNTY—

O. A. Thayer, Hite 1.....	*	....

PERRY COUNTY—

Ohio Oil Co., Beard 1.....	*	....
Beard 3	30	....
Conyers & Bugg, Cassidy 6.....	50	....
Franchville 3	5	....
Collins & Co., Simpson 1.....	*	519

SPENCER COUNTY—

Maxwell Petroleum Corp., Hawk 2..	10	....

VIGO COUNTY—

Dr. C. C. Taliaferro Jr., Lane 7....	*	....

KENTUCKY

DAVIESS COUNTY—

Mida McMahan, Jones 5.....	40	627
S. M. Sherman, Salmon 4.....	*	....
Jones 4	*	....
Mecca Oil Co., Martin 1.....	*	....

HART COUNTY—

Clark & Co., Johns 1.....	35	....
Archie Compton, Robertson 2.....	35	....
Oscar Benter, Craddock 2.....	5	....

McLEAN COUNTY—

Creek Drilling Co., Atherton 2.....	*	....
Morris 1	*	....
Smith 2	*	....
Thelma M. Engle & Co., Atherton 5	40	....

OHIO COUNTY—

S. W. Russell & Co., Whitehouse 1.	*	825
S. R. Nigh & Co., Kelly 16.....	25	....

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New Equipment for the Field

MACHINERY - TOOLS CATALOGS - BOOKS

▼ ▼ ▼

1. Special Rubber Pump Packings

KIBELE MANUFACTURING COMPANY

Kibele Manufacturing Company, San Antonio, Texas, has recently announced a line of special packings designed for resistance to the elements that destroy rubber when used in boiler feed and hot oil pumps. The company is supplying these packings with all pistons in the small sizes.

These packings, which can be replaced when worn beyond use, are used with pistons of the same fluid-expanding principle employed by the larger sizes used for slush pump work.

2. Combination Oil and Gas Burner

BULLUM SPECIALTY COMPANY

Bullum Specialty Company, Box 151, Overton, Texas, is now marketing the improved Bullum combination oil and gas burner, which uses as fuel oil or gas or a combination of the two. Switching from one of these fuels to the other, or the use of oil and gas both at the same time may be done with no change of equipment parts.

An outstanding feature of this burner is that the mixing and atomizing process takes place in the open air, where unlimited oxygen is available. A single Bullum burner, with fuel and atomizer properly regulated, is designed to heat a boiler of any capacity to any required heat. The burner design allows it to operate equally well on any size boilers, furnaces, stills, forges, and any type of blast furnace.

A lip directs the fuel to a point where the steam is at its highest pressure. A ridge in the center of the casting at the top forces the fuel downward, under the lip, and a hole over the lip acts as a breather, pulling in air as required. The ridge gives the air free circulation for proper mixture with the fuel. Two lugs, on the sides of the opening, centralize the oil flow. A hole under the mouth of the steam line vacuums in any possible waste oil.

Valve 1 is open only when burning high pressure gas. It should be closed when burning low pressure oil or gas.
2 regulates volume through the fuel hole to give proper mixture for the blast.
3 shows steam or air connection.
4 shows oil connection, when burning both oil and gas.
Interior Working View

3. Well Cleaning Chemical

DOW CHEMICAL COMPANY

A number of development companies at Mt. Pleasant, Michigan, are experimenting with a recently developed acid solution to clean out old wells which have fallen off in production. Exceptionally good results have been obtained on several wells.

The solution used in the treatment was developed by the Dow Chemical Company of Midland, Michigan, principally to clean out its own brine wells. However, the solution was experimented with in old oil wells and found to stimulate production and the solution has been patented by the Dow Chemical Company and is being marketed by the company under the trade name, "Dowell."

The treatment of a well is accomplished by pumping several barrels of the Dowell solution into the well. When first used it was merely pumped in and left for a period of from 36 to 48 hours. Now the company leaves the solution in the well for 24 hours but under pressure.

Pure Oil Company, Sias Oil Company, Chippewa Oil Company and Walter L. McClanahan, Inc., are a few of the development companies that have used the Dowell treatment on wells with what they term successful results. McClanahan's

— — — — — — ***MAIL COUPON*** — — — — — —

THE OIL WEEKLY,
Houston, Texas, U. S. A.

Please see that I am supplied, without obligation, additional information on New Equipment Items Nos._____ described in the August 1, 1932, issue of THE OIL WEEKLY.

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Company . . . . . .

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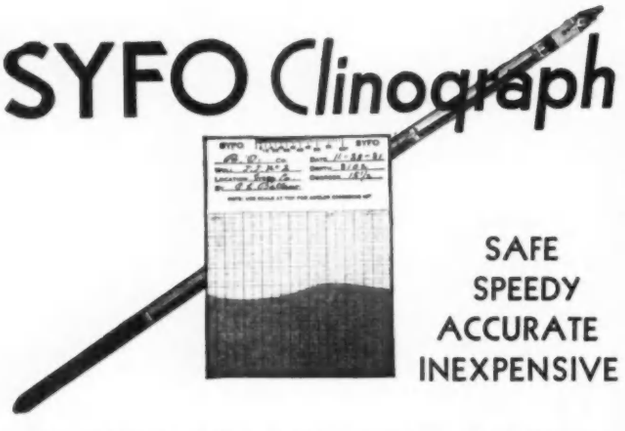
"Entirely satisfactory service. The equipment seems to be not only scientifically correct, but practical and positive in operation."

SYFO Clinograph



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402 Petroleum Building

HOUSTON, TEXAS
1417 Esperson Bldg.

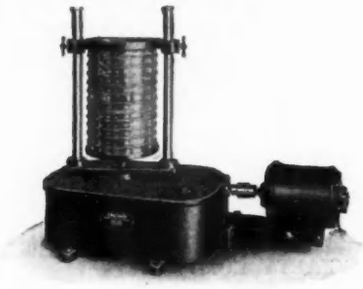
Morrison 1 well was treated with the solution when down to 125 barrels a day. It was increased to more than 400.

Several companies using the treatment have reported that 10 and 15 barrel pumper wells were brought back to flowing.

The Dowell solution has a hydrochloric acid base and the other materials in it have not been made public. Wells in this field after being produced several months plug up in the Dundee sand with both salt and paraffin and consequently choke off production. The solution cleans out the salt and paraffin in the lime formation.

4. Testing Sieve Shaker

NEWARK WIRE CLOTH COMPANY



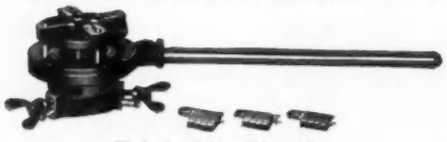
Newark Sieve Shaker

Newark Wire Cloth Company, Newark, New Jersey, has announced a new testing sieve shaker for testing the fineness of cement, sand, gravel, formations taken in oil well cores, fuller's earth and contact clays.

The manufacturer claims the following features of design for the shaker: elimination of most of the variable factors in sieve testing; the sample is spread uniformly over the whole surface of the sieve and the entire sieve surface is constantly utilized; jumping and bouncing of the sample particles is eliminated; noise and wear and tear on parts minimized.

5. Pipe Threader

THE TOLEDO PIPE THREADING MACHINE COMPANY



Toledo Pipe Threader

The Toledo Pipe Threading Machine Company, Toledo, Ohio, announces a new one-inch to two-inch pipe threader made in two models: a plain and a ratchet threader.

No bushings are needed with the three-jaw pipe holder, according to the manufacturer; the large winghead thumbscrews with micrometer line guide bars make the tool easy to center on the pipe.

Catalogs ◆ Bulletins

"Nickel Steel Topics"

The International Nickel Company, Inc., 67 Wall Street, announces the first issue of a bi-monthly, illustrated, miniature newspaper called "Nickel Steel Topics," which will be devoted exclusively to nickel alloy steels and contain technical and semi-technical and news articles dealing with the production, treatment and uses of these steels.

Welded Steel Parts

Lukenweld, Incorporated, Coatsville, Pennsylvania, has a 24-page illustrated bulletin describing the use of welded steel parts in various types of machinery and equipment.

Squeaks *from the* BULL WHEEL

Governor Alfalfa Bill Murray, visiting one of the state insane hospitals recently, was looking around over the grounds. One of the inmates approached him and asked who he was. "I'm Governor Murray of this state," the governor replied. "Don't you know me?"

"Haw, haw," laughed the inmate; "you soon get over that. I thought I was Herbert Hoover when I first came here."

Papa—My child, if I should die penniless, are you well prepared to fight the battle of life?

Daughter—I think so, father. I've been through three engagements already.

Professor—Tell me one or two things about John Milton.

Plebe—Well, he got married and wrote "Paradise Lost." Then his wife died, and he wrote "Paradise Regained."

The junior partner had been on a visit to a distant branch office, and was giving his father a full account.

"The manager there," he said, "is apt to take too much on himself. I gave him plainly to understand he must get authority from here, instead of acting too much on his own."

"Yes," said the senior, dryly. "So I gather. Here's a telegram from him."

The telegram ran: "Bad gas escape in the office. Please wire instructions."

I'm looking for a governess for my children.

Didn't we supply you with one last week?

Yes.

Well, madam, according to her report, you don't need a governess; you need a lion tamer.

Final examinations yielded the following glimpses of intelligence from the coming generation:

Gravity tells us why an apple does not go to heaven.

Ice is water that stayed out in the cold and went to sleep.

In Turkey, a man may have several wives and that is known as polygamy. In America he may have only one and that is known as monotony.

Contralto is a low sort of music sung only by women.

Shakespeare lived at Windsor with his merry wives.

They gave William II a lovely funeral. It took six men to carry the beer.

Judge: Ten dollars fine.

Motorist: Can you change a twenty?

Judge: Nope. Twenty dollars fine.

Husband: The doctor has ordered me to keep to a diet of sea food.

Wife: Oh fine! I'll bake you a sponge cake right away!

Teacher: Rastus, what animal is most noted for its fur?

Rastus: De skunk; de more fur you gets away from him de better it is fur you.

Gym Sec.: "Your weight?"

Vassar '35: "120 pounds."

Sec.: 'Height?"

Vassar '35: "Five feet."

Sec.: "Waist?"

Vassar '35: "28 inches."

Sec.: "Neck?"

Vassar '35: "Yes, ma'am."—College Life.

An engineer is said to be a man who knows a great deal about a very little, and who goes along knowing more and more about less and less until finally he knows practically everything about nothing; whereas, a salesman on the other hand, is a man who knows a very little about a great deal, and keeps knowing less and less about more and more until finally he knows practically nothing about everything.

M. O. WHITEHEAD,
Gardner-Denver Company, Tulsa, Okla.

"For 10 years, 10 long and lean years," said the writer, "I have been writing this drama, changing a word here, a line there, working on it till my fingers were cramped and aching, my brain and body weary from the toil."

"Too bad, too bad," murmured the producer, sympathetically. "All work—and no play."

I'm sorry you don't like my buns, but I can assure you that business has been built up almost entirely on my cookery!

I don't doubt it. With a few more buns like those you could build a hotel!

"Do you fix flats?"

"Certainly!"

"Here's my wallet."

Driving a Car Without Brakes Is All Right . . . Until You Want To Stop!

Getting by without Baker Cement Float Shoes, or Baker Cement Float Collars is all right, too—until something goes wrong—

It isn't merely the protection to the string of casing, which is expensive enough, but the entire investment in the well that must be considered.

You don't take chances in landing and cementing your casing when you use Baker Cement Equipment. The Baker Float Shoes exceeds the collapsing strength of the casing and contains a valve that is quick acting and positive, which is particularly essential in cementing.

***What is more*—You find your costs reduced materially by reason of the fact that the combination concrete and Bakelite valve drill out and circulate away easily.**

You find that you can core through the shoe and secure a sample of the formation directly below the shoe.

You find that further drilling operations are not impeded by objectionable fragments of material in the hole.

Remember, it is *your* well. Be on the safe side and specify Baker Cement Equipment. There is a type for every need: the Baker Cement Float Shoe, Baker Cement Float Collar, Baker Cement Guide Casing Shoe, Baker Cement Whirler Shoe, regular and high, and Baker Whirler Cementing Collar, regular or with Basket.

Cutaway of Baker Cement Float Shoe, showing internal concrete and Bakelite valve construction used in all Baker Cement (Floating) Equipment.

BAKER OIL TOOLS, Inc.

HUNTINGTON PARK, CALIFORNIA

COALINGA HOUSTON TULSA NEW YORK

NEWS *from the* *Industry's* EQUIPMENT MAKERS

Worthington Consolidates Cincinnati With Buffalo Plant

Worthington Pump and Machinery Corporation, Harrison, New Jersey, has announced the decision to transfer and consolidate the designing, engineering and manufacturing activities formerly carried on at its Cincinnati, Ohio, works with those of its Buffalo, New York, manufacturing plant.

During the past five years it has been the corporation's policy to foster the interchange of work between its various manufacturing establishments and to further this coordination by an interchange of key men. In order to fully conserve its position, skill and experience and to assure satisfactory service to its customers, necessary members of the Cincinnati Works organization are being transferred to Buffalo. Sufficient time is being provided for the move so that service to customers will be uninterrupted.

For the present, the Cincinnati plant equipment will remain intact. This move in no way affects Worthington's Cincinnati District Sales Office which is under the management of Earl Vinnedge.

Youngstown Moves Tulsa Office Location

Youngstown Sheet and Tube Company has moved its offices from 905 Exchange National Bank Building to 1304 Philtower Building, Tulsa, according to an announcement sent out by J. A. Mussler, field representative and district engineer for the company.

Los Angeles Credit Men Organize Oil Section

Los Angeles Credit Men's Association has recently formed a special division for the oil well supply and manufacturing branch of the oil industry in California, and monthly get-together luncheons are held at which time the credit managers of the various manufacturers and supply concerns get better acquainted and discuss general credit situation.

Floyd Glass was selected as manager of the new division, and due to his intimate knowledge of the oil industry, has been able to build up a membership of exceeding 25 member companies. Mr. Glass was connected with the Elliott Core Drilling Company when it was first formed by Brick Elliott, and he is credited with being a pioneer in core drilling.

Harman Made Sales Manager For Keystone Driller

The Keystone Driller Company, Beaver Falls, Pennsylvania, announces appointment of G. L. Harman as general sales manager. Mr. Harman was, until recently, sales manager of the Industrial Brownhoist Corporation. He is a native of Bay City, Michigan, and graduated from the engineering department of the University of Michigan in 1906.

G. L. HARMAN

With the above appointment comes that of Lynn H. Ransom as chief engineer. Mr. Ransom is a native of Beaver Falls, Pennsylvania. In 1925 he received the degree of mechanical engineer from Cornell University. He has, since 1926, been connected with the engineering department of the Keystone Driller Company.

E. L. DECKER of Martin Decker Development Company, Ltd., is on an extensive trip through the Gulf Coast and Mid-Continent fields, introducing the Smith Hydrostatic Sand Pump, a new development recently acquired by the above company.

ALLYN WOOD, secretary E. H. Edwards Manufacturing Company, San Francisco, is in the Mid-Continent and Gulf Coast territory in connection with the distribution of Edwards wire lines. Republic Supply Company, Houston, has been appointed distributor.

REX HAMAKER, vice president and general sales manager, Reed Roller Bit Company, will leave this week for California where he will be busy with company business for several weeks, after which he will fish up in that lake region for a few days before returning to Houston.

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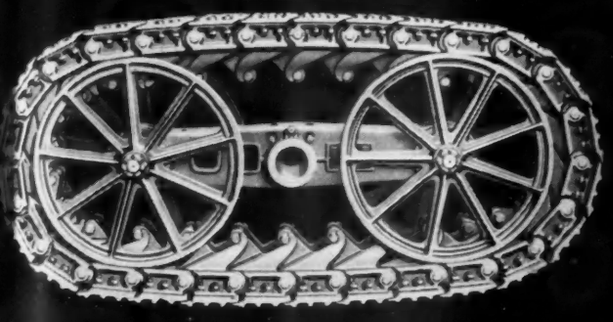

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